

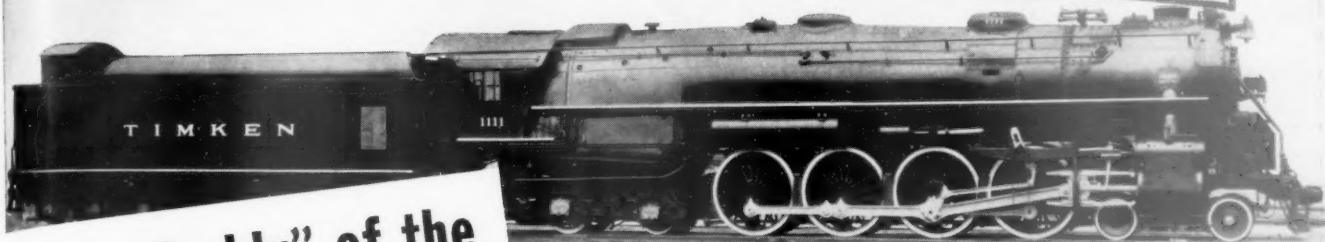
FEBRUARY 27, 1937

MAR 2 1937

# Railway Age

*Founded in 1856*

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## The "Daddy" of the Modern Roller Bearing Locomotive Rolls Up New Records

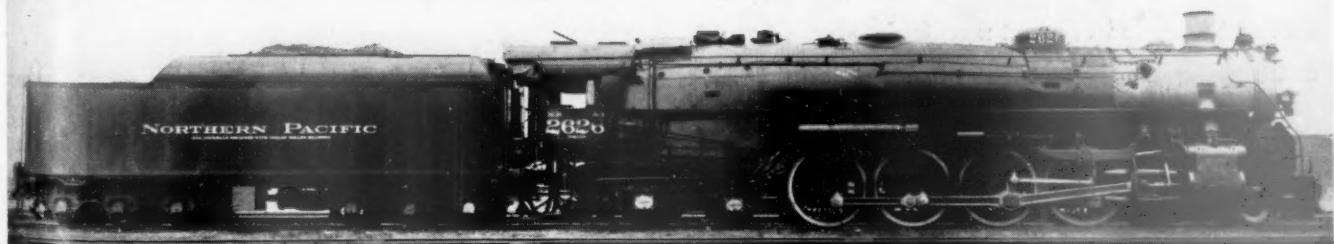


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Published every Saturday by the  
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Corporation, 1309 Noble Street,  
Philadelphia, Pa., with editorial  
and executive offices: 30 Church  
Street, New York, N. Y., and 105  
West Adams Street, Chicago, Ill.

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The *Railway Age* is a member of  
the *Associated Business Papers* (A.  
B. P.) and of the *Audit Bureau of*  
*Circulations* (A. B. C.).

Subscriptions, including 52 regular  
weekly issues, payable in advance  
and postage free; United States and  
possessions, and Canada, 1 year  
\$6.00, 2 years \$10.00; foreign coun-  
tries, 1 year \$8.00, 2 years \$14.00.

Single copies, 25 cents each.

Address H. E. McCandless, Cir-  
culation Manager, 30 Church Street,  
New York, N. Y.

# Railway Age

With which are incorporated the *Railway Review*, the *Railroad Gazette*  
and the *Railway Age-Gazette*. Name registered U. S. Patent Office.

Vol. 102

February 27, 1937

No. 9

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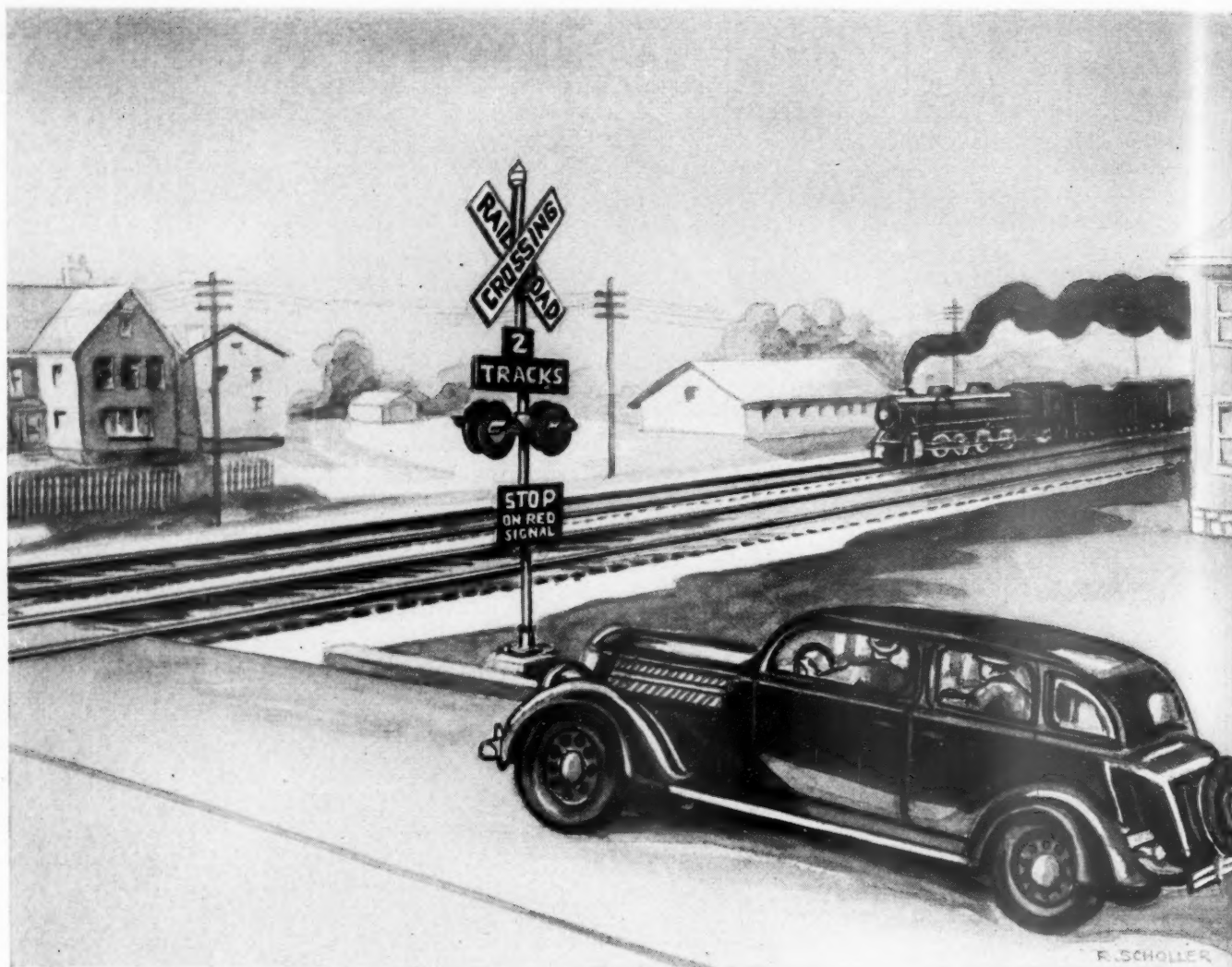
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# The Week at a Glance

**CARLOADINGS:** In the February 13 week freight car loadings totaled 692 thousand, or 9.6 per cent better than last year. With the passing of the flood, it appears that the recovery of loadings to the pre-flood superiority over last year is occurring rapidly.

**PROTECTING PERISHABLES:** Air conditioning is being applied to the preservation of perishables. Not temperature alone—but humidity and ventilation also—are important in the preservation of perishable produce and the railroads are recognizing this in improving service to produce shippers and consignees. Described herein is the B. & O.'s banana warehouse at Pittsburgh where facilities are provided which will keep this popular tropical fruit indefinitely under ideal conditions—ripening also being controlled technologically.

**"LEGAL" BONDS:** The "1½ times fixed charges", and other rule-of-thumb legal gages of the acceptability of railroad bonds for safe investments ought to be replaced by more scientific measures. This is the conclusion of Professor George W. Edwards, head of the department of economics of the College of the City of New York, in a paper read recently before a meeting of a trust conference of the American Bankers Association at New York. In this paper, which is presented herein in abstract, Dr. Edwards suggests new standards based on statistical analyses, for testing the safety of railroad bonds.

**CAR REPAIRS TOO OFTEN:** Many roads are "straining at a gnat and swallowing a camel" by placing all emphasis on locomotive delays, and little or none on those caused by cars. This was pointed out by Lawrence Richardson, the B. & M.'s well-known mechanical department expert, in an address last week before the New York Railroad Club, which is presented in abstract herein. Mr. Richardson gives figures which disclose 5 minutes lost by car failure to each minute lost by engine trouble; and he outlines a program designed to keep cars off the repair track for periods of two years.

**FLOOD RAILROADS:** Judging from newspaper and other reports from the Ohio valley, the railroads made many friends by their public-spirited behavior during the floods. Supervisory officers in many cases stayed on duty for days at a stretch in flooded yards and offices. Employees worked to the point of exhaustion—and, to flood sufferers, everything the railroads had to offer was free. A recent issue of the Portsmouth Times carried an extended account of the heroic and public spirited behavior of the local N. & W. organization. A newspaper at Cincinnati told about one time that C. & O. employees did not "sleep like a kitten". An employee of the K. & I. Terminal has written to tell us something of that road's great contribution to the relief of suffering. No railroad in the territory but played its

part, and played it well—no organization primarily charged with relief could have done a better job. Will the roads' behavior win appreciative response in legislative halls where it is so grievously needed? What do residents of towns which the railroads succored think about it?

**WAGE HIKE DEMAND:** Now come all the other organized employees with a demand for an increase in pay (the train and engine service men already having suggested a boost of 20 per cent as appropriate to their needs). The other employees, whose labor bosses made up their minds for them in Chicago this week, want a flat rise of 20 cents an hour regardless of present wages and they want their jobs guaranteed against lay-offs.

**P. & S. TO SEE EXHIBIT:** The Purchases and Stores Division of the A. A. R. will hold its annual meeting at Atlantic City June 21-23, coinciding with the Mechanical Division meeting and enabling the delegates from this department also to inspect the extensive exhibits of the first "railroad show" to be held since 1930.

**55 PASSENGER CARS:** The outstanding equipment order of the week was the placing by the New Haven of a contract for 50 additional coaches of its handsome modern design, and 5 cafeteria cars. This order will give the New Haven the largest fleet of post-depression, single-unit passenger equipment to be found anywhere in the country. The Canadian Pacific and the North Western came to bat with orders for 28 locomotives—20 and 8 respectively.

**C. & D. AT TORONTO:** Details of the Canadian National's cartage arrangements at Toronto are given herein in Part II of an article describing that road's intensive co-ordination of its rail service with that of motor vehicles—a comprehensive cartage lay-out in a city which has had this service for 75 years.

**ARCH BAR TRUCKS:** Twenty-two per cent (487,000 in all) of all railroad and private freight cars were still running on arch-bar trucks at the end of 1936, a survey by the Mechanical Division of the A.A.R. discloses. Such trucks are to be prohibited in interchange after January 1, 1938; yet, according to present estimates, there will by June 30 of this year, be 388,000 of these old timers still bouncing around.

**BIG TRUCKERS DOMINANT:** An analysis of the for-hire trucking business, made by the Census Bureau and reported herein, shows that, while there are many concerns engaged in trucking, it is "big business" which gets the big money. Concerns representing only 1½ per cent of the total took in almost 50 per cent of the gross revenue. Concerns representing less than ½ of 1 per cent did almost 28 per cent of the total business.

**AB BRAKE PROGRESS:** A compilation by the Mechanical Division of the A. A. R. discloses that approximately 110,000 railroad and private cars—or about 5 per cent of all interchange freight cars—were equipped with the AB brake as of December 31 last.

**EQUIPMENT OUTLOOK:** An article in the current issue of Barron's (February 22) analyzes the prospects for railway equipment purchases, and foresees several good years ahead in locomotive building and likewise in orders for freight cars, passenger cars, signaling and track appliances. If your interests lie along these lines, the article will repay the reading.

**LONG-HAUL PASSENGERS:** Since last July the number of "distance" passengers has exceeded that of suburban passengers for the first time since 1924. In 1932 suburban passengers outnumbered "distance" travelers by almost 2 to 1, but since that time (with the return of long-haul traffic to the rails) the "distance" traffic has been growing greatly in relative importance. An editorial herein analyzes this trend and shows how much more the "distance" passenger is getting for his money today than he did in 1924.

**COMPETITION:** About the best story of transportation competition we have heard comes from Canada. Minister of Railways Howe, defending his bill for transport regulation in a speech, told of a boat line which agreed with a shipper to make a rate 8 cents below any rate the railroads would quote. The railroads, quoted a rate of 8 cents on the business and the boat line had to haul it for nothing.

**STUPID SHIPPERS:** In the February 22 issue of Barron's Weekly, F. A. Korsmeyer, chief editorial writer of the Wall Street Journal, and Hon. Thomas F. Woodlock, analyze the railway outlook. They are not very optimistic, and Mr. Korsmeyer places the blame primarily at the door of short-sighted shippers who rend their clothing at the prospect of government ownership, and yet will not turn a hand to end the subsidies to railway competitors which threaten that outcome. Railway owners and creditors do not fare well either at Mr. Korsmeyer's hands—being accused of "stupid lethargy", and "professional advisers of ownership and creditorship" come in for a sound rap too. The indictment is a strong one which, coming from a recognized source of thoughtful, conservative opinion, ought to be widely read.

**"PACKING" THE COURT:** The general chairman of the non-operating railway labor organizations, meeting in Chicago this week to set up their demands for higher wages, took the occasion to go on record in favor of the President's proposal to "pack" the Supreme Court with new Justices amenable to his views. The publication "Labor" has likewise entered the lists against the court.



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## Where Regulation Should Be Extended

Although motor carriers for hire have now quite generally been subjected to government regulation, and although similar regulation for water lines will probably come eventually—nevertheless a very little analysis makes it quite obvious that the fundamental step necessary to genuine transport co-ordination has not been taken by any of these measures. Regulation of highway and water carriers can contribute little to transport co-ordination as long as the authority of the regulatory bodies extends only over the operation of vehicles or vessels, and remains impotent insofar as investment in new highways and waterways is concerned.

### Regulation Which Deals With Symptoms Only

The great element of waste which has arisen in transportation in this country has not come, in the first instance, from the appearance of too many vehicles and vessels on our highways and waterways, but rather from the construction of the highways and waterways themselves without any regard to each other or the existence of other transportation facilities. Regulation of the operations of vehicles and vessels alone, with no broad social control over the facilities used by these conveyances, does not attack the problem of waste in transportation at its source, but seeks only to cure symptoms. As long as highway and waterway construction is left entirely in the hands of authorities who have no concern for the transportation system as a whole, and who have an immediate selfish interest in fostering their own particular branch of it at the expense of other agencies, there can be no solution of the problem from the standpoint of the community interest.

Likewise it is folly to suppose that traffic will seek the channel which, in the interest of the national economy, it should seek, while a large part of the costs of some agencies of transport are borne out of the public treasury, while, in the case of other agencies, all costs must be borne entirely by the users. It is dangerous self-deception for anyone to believe that worth-while progress has been made in social control of transportation merely because the operations of vehicles are subject to regulation, while anarchy still reigns in the field of investment in fixed plant and while there is no

orderly assessment of the costs of such plant upon the users of it.

We have before us the "Supplemental Report of the Highway Cost Commission" of the State of Washington, published in Olympia in January, 1937, which contains a table, including, among other data, the following:

Comparison of General and Total Taxes Paid by Motor Carriers and Railroads, and Return on Investment—1935

	Taxes			Return on Investment, Per Cent
	Per Cent of Gross Revenue	Per Cent of Investment	Cents per Actual Gross Ton-Mile	
Motor Carriers (Passenger).....				10.79
Special highway user taxes.....	6.53	4.34	\$0.18	
General taxes.....	3.25	2.16	.09	
All other taxes.....	2.30	1.53	.07	
Total.....	12.08	8.03	\$0.34	
Motor Carriers (Freight).....				6.91
Special highway user taxes.....	6.48	7.54	\$0.15	
General taxes.....	1.73	2.01	.04	
All other taxes.....	2.93	3.42	.06	
Total.....	11.14	12.97	\$0.25	
Railroads.....				1.07
Selected roadway items*.....	66.55	5.32	\$0.22	
General taxes.....	10.67	0.85	.04	
All other taxes.....	0.11	0.02	....	
Total.....	77.33	6.19	\$0.26	

\* Cost of railroad facilities comparable to public highway facilities.

The levies on motor carriers, in comparison with those on the railroads, appear high only in the second column of this table—that showing the proportion they bear to investment; but any question on this point is quickly resolved when it is recalled that the investment of the highway carriers is confined almost entirely to their rolling stock, whereas that of the railways is related to the investment in roadway as well as equipment. If the railway taxes were shown as a percentage only of their rolling stock investment, as is the case with highway carriers, then in this column, as in the first, the excessive burden of the levies on the railways would appear in their true light.

### Motors Receive Quid pro Quo for Their "Taxes"

The first column discloses that the railways in the State of Washington are paying, in proportion to their gross revenues, almost as much in general and "other" taxes as the motor carriers are paying in all taxes combined, which includes for them the right to use a roadway built by the taxpayers—a facility which, privately supplied for themselves by the railways over



and above all tax payments, is costing over 66 per cent of railway gross revenues.

With such a purely artificial and arbitrary fiscal policy which donates to one transportation agency, in large measure, the road which it uses, while taxing another agency which supplies its own roadway in a much larger proportion of its gross revenues for general governmental expenses, the cards are stacked against the agency which is discriminated against by this fiscal policy. All questions of justice as between the competing agencies aside, and viewing the matter entirely from the standpoint of the economy as a whole, it is obvious from these figures that rates charged by the favored agency will be artificially low and those of the agency discriminated against will be artificially high as a result of this policy. As a result, some transportation tasks unquestionably will be shifted from the agency with lower true costs to the one with higher actual costs; and that is a policy leading, not to national wealth, but to national poverty.

#### **Co-ordination Impossible Without Comparable Taxation**

Regulation of rates and the requirement of certificates of convenience and necessity for all carrier agencies does not touch this vital problem in the slightest. It is sheer delusion to believe that the kind of regulation we have so far for motor carriers and that which is proposed for water carriers will accomplish anything fundamental in the way of true co-ordination of transportation, as long as it *completely ignores the incidence of the costs of the most expensive part of an inland transportation plant, which is not the vehicles but the roadway.*

The construction of highway and waterway facilities with utter disregard for existing railway plant is another vital phase of the problem of transport co-ordination and the elimination of waste which is not encompassed by existing regulatory policies; yet anyone capable of observation and elementary reasoning can easily understand that paralleling a facility not used to anything like capacity must involve a waste of capital. Highway construction, entrusted to zealots who foresee their personal advantage enhanced as highway traffic is multiplied, have not laid out the highways primarily from the standpoint of the development of a co-ordinated system of transport in the interests of society as a whole; rather their concern has been to aggrandize highway traffic *per se*; and the backbone of our highway system as it has been developed under this policy lies, not where other transport facilities are lacking, but precisely in those areas already best served. *The aim of the highway builders has not been co-ordination but duplication.* As long as the location of new roads is left in the hands of such partisans, and their plans are not subject to approval by the Interstate Commerce Commission or the state commissions, who are entrusted with the oversight of the public

interest in transport as a whole, it is folly to expect anything from regulation but mere surface-scratching as far as fundamental problems are concerned.

#### **How Reduce Wasteful Duplication?**

For many years it has been recognized that no adequate control of the railroads was possible which did not comprehend also the construction of new lines. Wasteful duplication of rail facilities entails losses which either investors or the public must make up, and authority was granted to the Interstate Commerce Commission to eliminate, or at least to minimize, such losses as far as railways are concerned. But the commissions have been given no authority over wasteful duplications in the form of over-developed highways and inland waterways. Conceived, in part at least, as a necessary protection for railway investors, regulatory authority over new railway construction alone has been inadequate to protect these investors. The question naturally also follows: If such protection is desirable, even theoretically, for private investors in railways, then is it not at least as desirable to extend similar protection to public investment in highways and waterways? In our opinion that question must be answered in the affirmative; but, if it is not, then any hopes which may be entertained for regulation as an effective means of reducing waste in transportation and fostering the development of a sound co-ordinated transport system are foredoomed to disappointment.

#### **No Social Plan for Roads and Waterways**

Extended economic studies are usually not made in connection with proposed new highway projects. They usually are made with respect to waterway improvements, but these studies have no concern with the development of a unified system of transportation, but are restricted solely to the probable cost and traffic of a proposed improvement, ignoring the fact that traffic may be secured entirely by diversion from existing facilities, the total costs of which are lower than those of the proposed waterway. However can we hope to have a co-ordinated transport system in this country when the bulk of the new investment going into it is entrusted entirely to zealots for particular agencies of transportation; and while we continue to ignore facilities of the Interstate Commerce Commission and the state commissions for enforcing upon all transport—as they are empowered now to do in the case of the railroads—the primary consideration of the general welfare in all new projects?

The commissioners, state and federal, with their intimate association with these problems must understand that the primary power and duty for transport co-ordination in the broad public interest is devolving upon them. They must see that they cannot fulfill this great responsibility unless they are given regulatory powers over highway and waterway investments, as they have

over proposed new railway construction. They must see that no true co-ordination can come about until each transport agency is given comparable burdens of taxation and the requirement of an equal degree of self-support. Why, then, are they not insisting that these powers be granted to them? (They are, on the whole, pretty able defenders of their power and prestige, once they are aroused.) Do they fear the political power of the highway and waterway pork barrel politicians; or do they hesitate to take on new responsibilities which would certainly not be light?

Whatever the reason for their hesitancy in drawing attention to the glaring hiatus in accepted transport regulatory policy as thus far unfolded, silence cannot be indefinitely maintained. Railroad regulation, without comparable regulation of competing agencies, has demonstrably failed in its objectives. The commissioners have sought partial regulation of highway and water carriers. Control of the motor lines has been granted, and quite possibly that over water lines soon may be. Nevertheless, for reasons which we believe have been amply set forth herein, the regulation of highway and water carriers, if it continues to omit investments in and incidence of the costs of fixed property, can accomplish little toward genuine co-ordination. Is it unreasonable to expect that public servants in whose laps the historical evolution of our institutions has left this major economic and social problem, should begin soon to give evidence through their public utterances that they appreciate the nature of their job?

## Much More for Much Less

One of the most encouraging factors in the present railway situation is the return of long-haul passengers, as distinguished from suburban or commutation passengers. In the first 11 months of 1936, as compared with the same months of 1935, there was an increase of 40,000,000 in these "distance" passengers, an increase equivalent to almost one-third of our total national population. The increase in this class of pas-

sengers has been so marked that since the first of July the number of "distance" passengers has again exceeded the number of short-haul or commutation passengers. The last calendar year in which this occurred was 1924, the figures for that year showing 493,000,000 long-haul travelers and 439,000,000 commutation passengers.

In 1932 suburban passengers on the railroads outnumbered their longer-distance brethren by 95 per cent, or almost two to one, the totals for that year amounting to 315,000,000 commutation passengers and to less than 162,000,000 long-haul passengers. This gap has been closed gradually until in 1935 the number of commuters handled by the railroads was only 39 per cent greater than the number of "distance" passengers. This figure fell to 33 per cent in the first six months of 1936, while current reports of the Interstate Commerce Commission show that in the five months ending with November, 1936, the number of "distance" passengers (107,000,000) exceeded by four per cent the total of 103,000,000 commutation passengers carried in those same five months.

Having now exceeded the number of commutation passengers, it is interesting to note what the long-haul passenger is now receiving as compared with his 1924 predecessor. Using these same five months (July-November) of each year, he traveled an average of 81 miles in 1936 as contrasted with 64 miles in 1924. He paid the railroads an average of 1.9 cents a mile in 1936, as compared with 3.3 cents in 1924; and his average payment for his total journey was \$1.52 in 1936 and \$2.09 in 1924. Relatively, from 1924 to 1936 his journey increased 27 per cent, his total cost decreased 27 per cent, and his cost per mile traveled decreased 42 per cent. Or, to state it in miles and cents, the journey of the average "distance" railway passenger increased by 17 miles from 1924 to 1936, while his rail fare, despite this longer journey, decreased by 57 cents.

When one considers the service improvements that have been made since 1924—faster schedules, new equipment and air conditioning, to name only a few—it would appear that "Much more for much less" might well be the slogan of railway passenger service.

### General Public Just Won't Solve Railroad Problem

Probably not less than nine out of 10 manufacturers and merchants would loudly proclaim their opposition to government operation of the railroads any time you asked for their opinions on the subject; probably 10 out of every 10 are more than willing to ship by highway truck as often as any trucker offers an attractive rate. It is always a railroad executive who raises the question whether a good part of certain private freight bills is not being paid out of the public purse, but it is never the shipper able to use the highway or the artificial waterway in his business that volunteers the answer. . . .

This newly arrived competition . . . is part and parcel of the new day in which comprehensive changes in an

economic environment can take place with a rapidity inconceivable to the generation immediately preceding ours.

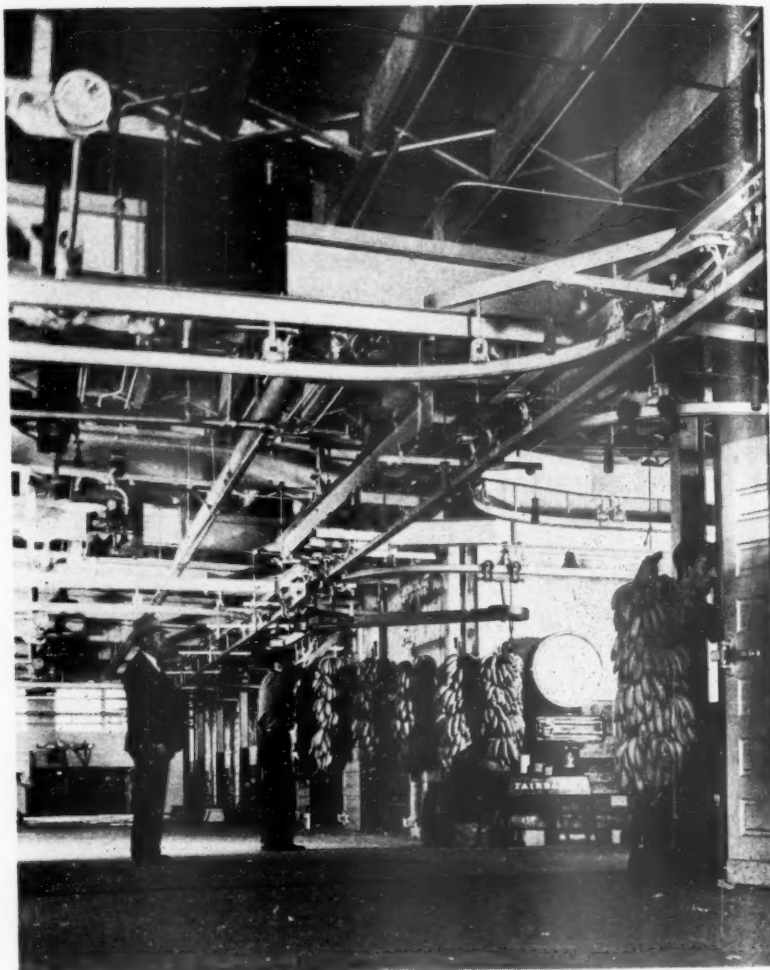
No doubt enough has been said these past dozen years about the obtuseness of railroad managers to what was going on about them. They are at least rubbing their eyes. Not enough has been said about the stupid lethargy of railroad owners and creditors . . . who think they serve themselves best by deferring the sad burial of dead capital in hope that returning traffic will resurrect the corpse, or at least a couple of arms or legs thereof. . . .

The railroad problem is primarily a multifarious salvage problem, one which the general public just won't solve for the managers, owners and creditors.

—Frederick A. Korsmeyer in *Barron's*



Above—From the Track Side to the Trucking Side, the Entire Warehouse Is Served by a Monorail System



Right — Looking Through the Sales and Display Area of the New Banana Warehouse

## Air Conditioning Extended to Perishable Produce Storage

Equipment at new Baltimore & Ohio banana warehouse at Pittsburgh, Pa., provides for the automatic control of temperature, ventilation and humidity

**M**ODERN air conditioning, with its control of temperature, humidity and ventilation, is coming to the aid of the perishable produce trade and the railways in handling, holding and conditioning perishable produce under the most favorable conditions, with marked economy to the trade and improved quality of produce to the consumer. One of the latest and best evidences of this is the new banana warehouse of the Baltimore & Ohio at Pittsburgh, Pa., where, through the facilities provided, it is possible to hold bananas indefinitely under ideal conditions of temperature and humidity, and then to ripen them slowly or rapidly, as desired, under conditions best suited to preserve their quality and to bring out their best flavor.

For years it has been recognized that the holding and conditioning of various classes of perishable produce

require careful control of temperature, ventilation and humidity, the factors of ventilation and humidity being of equal importance with that of temperature in the case of several classes of produce, one of the more important of which is bananas. In spite of full knowledge of the requirements of ideal conditions for the holding and conditioning of bananas, it has only been within the last two years, with the rapid development of air conditioning equipment for public areas, that it has been possible to reach these ideal conditions in banana warehouses.

### Improvement on Former Methods

In the past, the facilities for holding bananas in storage have varied all the way from the use of basement space without refrigeration or ventilation to the use of





Baltimore &amp; Ohio Banana Warehouse at Pittsburgh

special rooms equipped with brine or ammonia coils and ventilating fans, and the added facilities for the ripening or conditioning of the fruit have varied from practically nothing to the use of gas stoves and steam heating units, supplemented by pans of water or spray systems to provide some degree of humidity control. These different types of facilities have been used with varying degrees of success, depending upon the natural quality of the fruit and the demands of the market, but have been unsuited to meet all of the conditions which normally arise in the trade, and yet produce minimum loss and the highest quality of fruit for the consumer. Only through the positive control of all three factors, temperature, ventilation and humidity, as is provided in the new warehouse at Pittsburgh, is it possible to handle the fruit under ideal conditions at all times.

### 16 Conditioned Storage Rooms

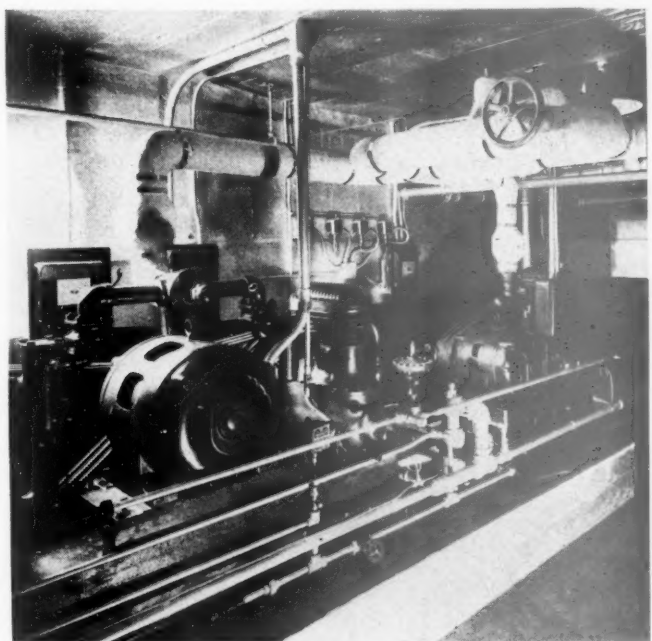
The new warehouse, which is being occupied and operated by a local wholesale produce dealer, is a one-story brick and steel structure approximately 226 ft. long by 60 ft. wide, with a canopy-covered receiving platform and a car siding on one side and a canopy-covered delivery platform for loading trucks on the other side. The floor of the building and both platforms are of concrete, while the roof is of timber construction, insulated with one inch of Celotex and covered with built-up, slag-coated roofing. Office facilities for the fruit company are provided at one end, and a basement, 63 ft. long by 44 ft. wide, provides a machinery room, a boiler room and dry storage space. Aside from the office space, the main floor of the building, which is at car-floor height, is occupied by a sales and display space and by 16 banana storage rooms. The storage rooms are arranged in two batteries of eight rooms each along the track side of the building, while the display and selling space, 24 ft. wide, extends the full length of the building on the trucking platform side, directly in front of the storage rooms.

A monorail system for the handling of banana bunches extends the full length of both outside platforms, through the center of the sales and display space, and into and through each of the storage rooms, eliminating the manual lifting or handling of the bananas, except for placing them on and removing them from the carriers of the monorail system.

Each of the banana storage rooms is 36 ft. long by 12½ ft. wide and 11 ft. high, and is insulated, walls and ceiling, with 3 in. of corkboard. Each room provides for the storage of 600 bunches of bananas, these being hung in two tiers from hooks screwed into an open timber rack system approximately eight feet above the floor

level. This arrangement for supporting the bananas provides for complete air circulation above and below them, and also for the location of the air conditioning equipment near the ceiling, above the storage area.

Each of the storage rooms is equipped with an independent air conditioning unit, whereby the condition of the air in each room can be controlled independently of that in any of the other rooms. The air conditioner in each room, which is located at the rear, or track side, of the room, above the banana-supporting racks, is of the latest York type, which includes finned "Freon-12" cooling coils, a motor-driven fan capable of delivering 4,000 cu. ft. of air per minute, finned steam heating coils, water sprays for humidification, and a bronze wool air filter, all enclosed in a galvanized iron casing. Each conditioner is supplied with fresh air from the outside by means of a galvanized iron duct which extends to louvered openings in the rear wall of the building. This duct is provided with two dampers, one regulating the inflow of outside air and the other the re-circulation of air within the room. Through this arrangement for ventilation, up to 2,000 cu. ft. of fresh air per minute can be brought into each storage room, mixed with the air within the room as desired, and then automatically exhausted. This not only insures ideal ventilation from the



The Interlocking of Two Freon Compressor Units in the Conditioning System Results in Maximum Efficiency and Economy of Operation

standpoint of the fruit, but also makes it possible to use the cold outside air in the winter for cooling purposes, minimizing the cost of operating the cooling unit of the air conditioner.

All of the air conditioners in the various storage rooms are connected with the basic generating units of the cooling system, located in the machinery room in the basement. These generating units include two "Bal-anseal Freon-12" condensers, one of 11 tons refrigerating capacity, driven by a 10-hp. motor, and the other of 22 tons refrigerating capacity, driven by a 20-hp. motor. These units are fully automatic in operation and are so controlled that when the 10-hp. unit cannot carry the load, the 20-hp. unit starts up and the 10-hp. unit shuts down. If the 20-hp. unit alone cannot carry the load, the 10-hp. unit starts up automatically and operates in conjunction with the larger unit. As the refrigerating load drops, the reverse of the above cycle takes place automatically. This insures not alone adequate cooling capacity at all times, but also the greatest economy in the operation of the plant.

The cooling cycle of the conditioning system is, briefly, as follows. The Freon-12 gas in the cooling system is first highly compressed and then passed through a water-type condenser, from which it is piped to the individual conditioning units in the different storage rooms. Here, under automatic regulation, the liquid is freed in the finned cooling coils, bringing about, through its rapid expansion, the cooling temperature in these coils. The Freon, again in a gaseous state, is then returned to the compressor units for re-compression and re-circulation.

The entire operation of the cooling system, and, therefore, the temperature within each storage room, is controlled by a thermostat located on the front wall of each room. Merely by the setting of this device, the temperature of the room can be controlled, the thermostat not only regulating the temperature of the cooling coils but also the supply of steam to the steam heating coils of the unit, which come into play when heat is desired in the room because of low outside temperatures, or because of higher temperatures desired in connection with the ripening of the fruit.

Uniform ventilation of the storage rooms is effected by means of the 4,000-cu. ft. fan, with its damper-controlled intakes, forming a part of each air conditioning unit. This ventilation is made unusually effective by the arrangement of the banana racks, which permits free circulation, above, below and around each bunch of fruit in any part of the room.

Control of humidity in the proper storage and conditioning of bananas is as important as temperature control and ventilation, although it has seldom been obtained effectively in produce warehouses in the past. This feature was given special attention in the B. & O. plant at Pittsburgh, with the result that the relative humidity of the air within the storage rooms can be adjusted automatically over a considerable range. Dehumidification of the air as required is no special problem, since this takes place automatically with the lowering of the air temperature. The real problem, especially in connection with the storage of bananas, is to raise the humidity in the storage rooms to the most favorable level, particularly during periods of ripening. This is accomplished in the air conditioning units by a series of water sprays, controlled automatically by humidistats and solenoid water valves, which impinge upon the finned cooling coils where the moisture can be picked up readily by the inflowing air. Through this arrangement, relative humidity as high as 76 per cent can be obtained in air at a temperature of 56 deg., and as high as 88 per cent in air at a temperature of 68 deg.

Condenser cooling water in connection with the oper-

ation of the air conditioning system is secured through the plant's own water system, which includes a 120-gal. per min. deep well pump driven by a 5-hp. motor, a water storage tank, and suitable pipe connections throughout the building. This system, which is controlled automatically by a pressurestat, maintaining pressures within the storage tank from 15 to 30 lb., also supplies humidification water and water to hose connections for washing down the bananas. Connection with city water mains is provided for use in emergency.

The steam supply at the plant, including that for general heating of the building in the winter, as well as for temperature control within the different storage rooms throughout the year, is furnished by a fully automatic gas-fired steam boiler located in the basement. This unit maintains from three to five pounds pressure at all times at the air conditioning units in the different banana rooms, so that heat is always available to raise the temperature within any one or all of these rooms, as desired.

The new facilities at Pittsburgh were planned and constructed under the general direction of H. A. Lane, chief engineer of the Baltimore & Ohio, and under the immediate direction of L. P. Kimball, engineer of buildings. The refrigerating and air conditioning equipment was furnished and installed by the York Ice Machinery Corporation, York, Pa. The general building construction was carried out by the Rust Engineering Company, Pittsburgh, Pa.

## Freight Car Loading

WASHINGTON, D. C.

**R**EVENUE freight car loading for the week ended February 13 totaled 691,618 cars, an increase of 16,592 cars or 2.5 per cent above the preceding week, an increase of 60,523 cars or 9.6 per cent above the corresponding week in 1936 and an increase of 109,949 cars or 18.9 per cent above the corresponding week in 1935. The summary, as compiled by the Car Service Division, Association of American Railroads, follows:

Revenue Freight Car Loading For Week Ended Saturday, February 13			
Districts	1937	1936	1935
Eastern .....	155,076	149,102	138,136
Allegheny .....	147,748	124,877	117,616
Poconos .....	50,554	53,628	46,090
Southern .....	99,235	92,839	87,358
Northwestern .....	77,805	64,918	67,694
Central Western .....	103,282	92,820	80,093
Southwestern .....	57,918	52,911	44,682
Total Western Districts .....	239,005	210,649	192,469
Total All Roads .....	691,618	631,095	581,669
Commodities			
Grain and Grain Products .....	30,473	28,095	25,192
Live Stock .....	11,635	9,969	11,571
Coal .....	155,166	192,491	140,351
Coke .....	12,233	11,329	7,801
Forest Products .....	35,300	26,469	24,734
Ore .....	11,055	5,615	3,911
Merchandise L.C.L. ....	162,575	144,078	155,750
Miscellaneous .....	273,181	213,049	212,359
February 13 .....	691,618	631,095	581,669
February 6 .....	675,026	621,686	591,327
January 30 .....	659,790	621,890	596,961
January 23 .....	670,376	584,637	555,528
January 16 .....	700,238	611,347	562,826
Cumulative Total, 7 Weeks .....	4,683,530	4,227,334	3,939,103

### Car Loading in Canada

Car loadings in Canada for the week ended February 13 totaled 46,370, a decrease of 138 from the previous

(Continued on page 360)

# New Standards of Safety for Bonds\*

Statistical analysis shows most legal gages of safety have failed — Other standards suggested

By George W. Edwards, Ph.D.

Chairman of the Department of Economics, College of the City of New York

THE world in general is facing a shortage rather than a surplus of capital, due to misdirection of savings over a period of many years. One method of preventing such misapplication in the future is a revision of the legal requirements governing the investment of savings and trust funds. In the following is given an analysis of these legal requirements for railroad bonds and there is also presented a group of recommended standards which may be used for the purpose of revising the present legal list for such railroad securities. This analysis is part of a larger study of the financial system undertaken by a Works Progress Administration project conducted by the College of the City of New York. Basic data used in this study were supplied by the Fitch Investment Service.

## Method of Analysis

Table I presents the actual investment experience of the statutory minimum requirements for railroad bonds as established in the states which have legal requirements for the investment of savings and trustee funds. The requirements of the various states vary, and so in this study the most stringent tests employed by any of these states are used. For the purpose of this study the railroads of the United States were divided into good and poor classes.

The good railroads were those whose bonds at no time throughout the depression were priced to yield above 6 per cent, while the poor railroads included all those which either had a yield above 10 per cent or which went into default. These good and poor roads were then subjected to various statistical tests. This article

presents only the simplest of these tests, namely the percentage of the good and poor roads which in the period from 1923 to 1934 met each of the legal requirements and later the suggested standards. The effectiveness of each test is determined by the extent to which it included the good roads and on the other hand excluded the poor roads. A perfect test would, of course, have included all the good roads and have excluded all the poor roads. Such a perfect test is obviously impossible of attainment in actual practice and so the effectiveness of the test can rather be measured by the extent to which it differentiates between the good and poor roads as measured by a high per cent of the good and a low per cent of the poor roads.

## Analysis of Legal Tests

Table I shows the extent to which the good and the poor roads met the most stringent of the legal tests. The first test is that of mileage. The mileage test as used in most of the states requires that the road must have at least 500 miles of single track. The figures show that 80 per cent of the good roads met the test but at the same time 70 per cent of the poor roads likewise met this requirement. In view of the fact that this test was met by so large a proportion of the poor roads, the futility of this test is clearly indicated.

The laws in most states establish a legal requirement that a road must have \$10,000,000 and in some states \$15,000,000 of gross earnings in the sense of gross operating revenues. The figures show that this test was met by 73 per cent of the good roads in the boom period and by 60 per cent in the depression. At the same time 56 per cent of the poor roads met the test until the end of 1927 and even 22 per cent of the poor roads met the

\* Abstract of an address delivered at the Mid-Winter Trust Conference, American Bankers Association, New York.

Table I—Analysis of Legal Tests

Per cent of Good and Poor Roads meeting Legal Requirements.

Year	Mileage 500 Miles		Gross Earnings \$15,000,000		Cash Dividends to Capital Stock 4 Per cent		Cash Dividends to Fixed Charges 33 1/3 Per cent		Net Income to Fixed Charges 1.50 Times		Gross Earnings to Fixed Charges 500 Per cent		Total Debt to Capital Stock 300 Per cent	
	Good	Poor	Good	Poor	Good	Poor	Good	Poor	Good	Poor	Good	Poor	Good	Poor
1923	80	67	73	52	87	15	80	19	87	59	100	96	80	85
1924	80	67	73	52	94	15	80	19	87	74	100	96	87	85
1925	80	67	73	56	87	29	87	37	93	78	100	96	87	81
1926	80	67	73	56	94	33	87	40	100	74	100	96	87	78
1927	80	67	73	56	94	33	87	37	100	56	100	96	87	78
1928	80	67	73	52	94	33	87	44	93	63	93	96	87	78
1929	80	70	73	52	94	33	87	44	93	59	100	96	87	78
1930	80	67	73	44	94	41	87	44	100	33	100	85	87	81
1931	80	67	67	37	87	15	80	22	73	15	93	59	94	85
1932	80	67	60	26	33	0	60	4	53	3	87	33	94	89
1933	80	67	60	22	27	0	60	4	67	3	87	29	94	89
1934	80	67	60	26	47	0	67	4	73	3	87	29	94	89
Range for the Period:														
HIGH	80	70	73	56	94	41	87	44	100	78	100	96	94	89
LOW	80	67	60	22	27	0	60	4	53	3	87	29	80	78

\* This is a maximum standard for good roads and a minimum standard for poor roads.



test even in 1933. There was therefore no wide variation between the good and poor roads. Even the Missouri Pacific, St. Louis and San Francisco, the Rock Island, and Seaboard Airline successfully met this test.

### Dividends Unsatisfactory as a Test

It is generally required that a road must show a cash dividend of 4 per cent on its capital stock. This test was met by 94 per cent to 27 per cent of the good roads and from 41 per cent to none of the poor roads. The weakness of this test is that it was too rigid since in one year it excluded three-fourths of the good roads.

The law generally requires that cash dividends must not be less than one-third of fixed charges. This requirement proved to be a satisfactory test, since it included a range from 87 per cent to 60 per cent of the good roads while it excluded all but 44 per cent to 4 per cent of the poor roads.

The state laws require that fixed charges must be covered 1.5 times. This test was met by 100 per cent to 53 per cent of the good roads and from 78 per cent to 3 per cent of the poor roads. In fact until the end

all the ratios measuring the burden of debt and the nature of the capital structure of a railroad such as the debt per mile, property to debt, and debt to total capitalization. For many years it has been customary for financial analysts to study the capital structure of railroads by capitalizing their leased rentals, and even when this element was included in the capital structure it showed no differentiation between the good and poor railroads. In other words, the soundness of a road is not determined by the nature of its capital structure.

### Suggested Standards

The tests which proved effective were those relating to the net earning power of the road as reflected in such standards as freight density, net income, cash dividends to capital stock, cash dividends to fixed charges, net income to fixed charges, net income to total income, net railway operating income per mile, and net railway operating income to gross earnings. These tests are presented in Table II, which again shows the investment experience of good and poor roads from 1923 to 1934 inclusive. These suggested standards are not yet final and will need

**Table 2—Suggested Standards**  
Per cent of Good and Poor Roads Meeting Standards

Year	Freight Density 1,200,000 Ton Miles		Net Income \$2,000,000		Cash Dividends to Capital Stock 2.5 Per cent		Cash Dividends to Fixed Charges 33 1/3 Per cent		Balance for Fixed Charges to Fixed Charges 180 Times Earned		Net Income to Total Income 8 Per cent		Net Operating Income Per Mile \$3,000	
	Good	Poor	Good	Poor	Good	Poor	Good	Poor	Good	Poor	Good	Poor	Good	Poor
1923	80	22	73	23	93	26	80	19	73	49	80	33	80	35
1924	80	22	73	33	93	26	80	19	73	51	73	37	87	35
1925	80	37	73	44	93	41	87	37	80	63	87	48	80	42
1926	87	37	80	37	93	44	87	40	87	67	87	56	93	42
1927	87	29	73	22	93	40	87	37	93	22	93	22	87	19
1928	87	29	73	19	93	40	87	44	93	41	93	33	93	27
1929	87	33	73	19	93	44	87	44	93	37	93	41	93	38
1930	80	26	73	15	93	44	87	44	86	7	80	11	80	15
1931	67	19	53	0	93	30	80	22	60	3	60	7	80	0
1932	54	0	47	0	47	4	60	4	40	3	53	7	53	0
1933	60	4	53	0	53	4	60	4	40	3	60	7	53	0
1934	..	..	60	0	67	0	67	4	53	3	60	4	..	..
Range for the Period:														
HIGH														
LOW														
..														

of 1929 almost three-fifths of the poor roads were able to meet the test. It is therefore clear that this test is too liberal.

The law generally requires that gross earnings to fixed charges should be met 5 times over. This test was met by 100 per cent to 87 per cent of all the good roads, but at the same time 96 per cent to 29 per cent of the poor roads also met the test. In fact, an average of 76 per cent of the poor roads for the entire period were able to qualify. Obviously this test is entirely ineffective since it includes too many of the poor roads.

Another test requires that the total debt of a railroad should not exceed 3 times its capital stock. This test was met not only by 98 per cent to 80 per cent of the good roads but even 78 per cent of the poor roads were able to comply. There was practically no differentiation between the good and poor roads.

It is therefore clear that most of the legal requirements do not prove satisfactory when judged by the investment experience of recent years. In order to determine new standards for the legal list, a survey was made of almost all of the possible tests which can be applied. Most of these tests proved to be as ineffective as the legal requirements when judged by actual investment experience. Many tests which have been in popular use in financial analysis proved futile, as for example the operating ratio, the maintenance ratio, and the current ratio.

Most startling of all was the apparent uselessness of

further refinement. They do, however, indicate the basis for definite standards.

1. *Freight density.* This refers to the number of tons of net freight moved per mile. A freight density of 1.2 million ton-miles would have included from 87 per cent to 54 per cent of the good roads and would have excluded from 37 per cent to all of the poor roads.

2. *Net income.* Net income in the sense of the balance after fixed charges of \$2,000,000 would have included from 80 per cent to 47 per cent of the good roads and would have excluded from 44 per cent to all of the poor roads.

3. *Cash dividends to capital stock.* As mentioned before, the requirements of 4 per cent cash dividends was too rigid and therefore a lowering of the requirement to 2 1/2 per cent would have been more satisfactory since it would have been met from 93 per cent to 47 per cent of the good roads, where the 4 per cent requirement would have been met by only 27 per cent of the good roads. Since approximately the same proportion of the poor roads were excluded by the 2 1/2 per cent as by the 4 per cent requirement, a lowering of the requirement would enable twice as many of the good roads to qualify in poor years without making any changes in the poor roads.

4. *Net income to fixed charges.* This is the same as the legal requirement mentioned above. As previously noted, this test was too liberal since it permitted too many of the poor roads to qualify. If the requirement

had been 1.8 times it would have excluded more of the poor roads without eliminating many of the good roads.

5. *Net income to total income.* This is the so-called margin of safety and shows total income, including both operating and non-operating income, without impairing the protection of the fixed charges. It is generally recognized as a more effective test than merely the number of times fixed charges are covered. A margin of 8 per cent would have permitted from 93 per cent to 53 per cent of the good roads to qualify, while after 1926 it would have excluded the larger part of the poor roads.

6. *Net railway operating income per mile.* This test indicates the net railway operating income, or the amount left over after the payment of operating and maintenance and tax costs, computed on a per mile basis. A test of \$3,000 per mile would have been met by 93 per cent to 53 per cent of the good roads, by 44 per cent of the poor roads until the end of 1926 and thereafter the greater of the poor roads would have been excluded.

### Conclusions

From this analysis of legal requirements and suggested standards the following recommendations are made:

1. That the mileage test be replaced by a test of freight density of 1,200,000 ton miles.

2. That the test of gross earnings be replaced by that of net income of \$2,000,000.

3. That the test of cash dividends to capital stock be reduced from 4 per cent to 2½ per cent.

4. That the requirement of the ratio of cash dividends of not less than one-third to fixed charges be retained.

5. That the test of times fixed charges earned be raised from 1.5 times to 1.8 times.

6. That the test of gross earnings to fixed charges and total debt to capital stock be abandoned and in their place the following new tests are suggested: a ratio of 8 per cent of net income to total income and net railway operating income of \$3,000 per mile.

It is further urged that in view of the wide variation in the nature of railroads that they no longer be required to meet all of the specified legal requirements but rather that the principle of alternative choice be adopted, permitting a railroad to qualify if it can meet a certain number of the legal requirements.

\* \* \*



Section of South African Railways Ticket Office at Johannesburg

## The Claim Agent Loads Both Barrels

By Elton Sterrett

**T**HE railroad, especially in those sections of the country where the locomotives are coal-fired, often finds itself in the role of an unwilling insurance company at every fire beginning anywhere within a quarter of a mile of the right-of-way, regardless of the lapse of time since the last engine passed that way.

Figures compiled by one assistant claim agent for his own information showed that in connection with damage caused by eleven fires in industrial establishments bordering his line during one year, the railroad had paid—either through court action or by direct settlement to avoid legal expense—a sum amounting to 40 per cent of that paid out by the insurance companies in settlement of losses sustained under their own policies in the same fires.

Following his survey of the year's fire losses, this agent borrowed a good camera with telephoto lens



Fig. 1—Drawing Smoke Toward Its Center, the Towering Column Sweeps Out Over the Railroad and Thus Shows the Direction of the Wind as the Fire Started

equipment and made a daytime survey of all plants abutting on his company's right-of-way, taking the most of his shots from caboose lookouts on the various local freight runs.

Going over prints from his films, using a good magnifying glass to check details, he was surprised to discover that one of the big shippers of rough lumber along the main line had slightly changed his yard storage procedure. Instead of just relying upon the upper layer of whatever lumber composed the stack, a shed roof was now being laid to protect against the weather, and the boards forming this were slabs from the outside of pine logs. In many cases the bark was still on; but even if peeled, the inner bark or bast remained and this, a matted network of fibrous tissue, was a most effective spark trap, smoldering perhaps for hours before a vagrant breeze would fan the sullen glow to flame. A friendly tip to the local insurance adjusters' office got immediate action, and the lumber company promptly tore off the slab rainsheds and returned to its former practice of using clean material for covers—undoubtedly preventing an eventual claim for fire loss.

Where he himself could not cover certain districts, due to the distance from the main claims office, the agent made unofficial arrangements with local photographers (usually amateurs)—even going so far as to furnish lay-outs for taking snapshots in case of fire. One stip-



Fig. 2—Working Toward the Right-of-Way the Blaze Is Still Two or More Lumber Stacks Away from the Siding from Which the Picture Was Taken

ulation he made was that at least one general view must show the direction of the wind, tying in the trend of the rising smoke column with some natural landmark which could be positively identified.

When fire did break out in one lumber mill storage yard, it picked as time to happen just after a passenger train, trailed as closely as clearance orders permitted by an extra, had passed. The latter had little more than cleared the next block when the first sign of fire was observed.

The cameraman rushed toward the mushrooming pall of smoke. As quickly as possible, snapshots were taken of the blaze with the railroad viewpoint in mind. Denoting the wind direction admirably, one picture was focussed with the railroad in middle foreground, the heavy smoke cloud rising toward and casting its shadow over the rails. A second picture, snapped from the end of the string of box cars still standing beside the covered hardwood loading platform, showed the fire eating its way toward the railroad, with an entire tier of stacks still untouched by the flames, while deeper within the yard was nothing but a bed of white-hot ash. Still another view, snapped at the other end of the fire and with the plank road paralleling the railroad tracks in the foreground, showed one of the lumber piles nearest the right-of-way literally exploding as the intense heat to which it was subjected ignited the mass almost with the velocity of a flash through a gas mixture.

These pictures together with affidavits from the photographer and his aide (both of whom had checked time of each exposure), and the fire department's record of time first water was thrown on the blaze, enabled the



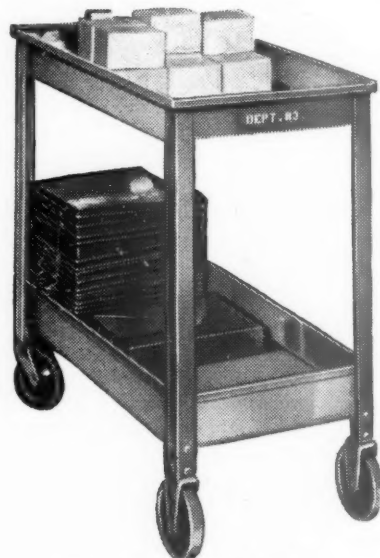
Fig. 3—One of the Outpost Stacks Explodes into Flames as the Blaze Works Its Way to the Plank Road Paralleling the Railroad for the Handling of Incoming Logs

claim agent to convince the lumber company that the railroad was without responsibility for the fire.

Months afterward the origin of this particular loss was traced down to a small fire which the log gang had built for toasting their soaked footwear while awaiting the quitting signal, and which had exploded and scattered embers into adjoining lumber piles when a bucket of water had been dashed on it as the whistle sounded.

## New Cart for Handling Stock

**L**YON Metal Products, Inc., has developed a steel cart 32 in. high, 30 in. long and 16 in. wide for use in handling small material inside store rooms and warehouses. This cart will pass between aisles and storage bins without crowding and thus save time and inconvenience in places where skids or similar equipment



Steel Cart for Stock Rooms

cannot be used beyond the main aisles. The cart is mounted on four large rubber-tired casters (two swivel casters in front and two stationary casters in the rear) and is fitted with two metal shelves, each 3 in. deep, with room for a third shelf if desired. It is finished in green enamel.

## Freight Car Loading

(Continued from page 356)

week but an increase of 4,806 over last year, according to the summary of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
February 13, 1937.....	46,370	27,051
February 6, 1937.....	46,508	27,244
January 30, 1937.....	47,100	27,158
February 8, 1936.....	41,564	22,335
Cumulative Totals for Canada:		
February 13, 1937.....	277,884	160,999
February 8, 1936.....	234,832	129,954
February 9, 1935.....	248,806	129,539



# Build Freight Cars to Run\*

Two years between trips to repair track an attainable goal —  
Parts requiring added life are suggested

By Lawrence Richardson

Mechanical Assistant to Vice-President and General Manager, Boston & Maine

**T**HE QUARTER century following the War of 1812 marked a revolutionary change in transportation. Two diaries, written by my great-grandfather, set forth the change more vividly and concisely than can be portrayed by any timetables, statistics or maps.

He left Boston on February 19, 1815, on an emergency trip to New Orleans. Ordinarily he would have gone by water, as that was the usual mode of that day, but there were no ships sailing from Boston or New York, and those at Philadelphia and Baltimore were blocked in by ice. So he proceeded as far as the stages would take him and, when they were stalled by mud, he hired horses.

At the end of the stage line, in Abingdon, Virginia, he bought a horse which he rode to the shore of Lake Ponchartrain. After leaving Nashville over the old Natchez Trace he spent twenty nights in Indian villages, not enjoying a bed until he reached Ponchartrain. After 53 days of varied and nerve-wracking experiences he finally reached New Orleans, closing his diary: "Thus my tedious journey is ended."

He averaged 1.4 miles per hour, based on elapsed time and suffered four equipment failures and one power failure in 1,821 miles.

Twenty-five years later he made another trip—from the Mississippi Valley to New York—using steamboats up the Ohio to Wheeling, a stage over the mountains to Cumberland, and railroads from there to New York. It took six days. He averaged in a day what his former trip had required a week to make.

By comparison with his former trip it was luxurious, in that he was protected from rain and mud. But, by comparison with present day travel, it was trying and tiresome, especially as the coaches were jammed with delegates enroute to the Whig Convention at Baltimore. Travel still called for early rising—generally at four or five o'clock, in order that the maximum distance possible in daylight be made. Sleep generally came from exhaustion and under conditions that reminds one of third-class travel in eastern Europe.

The quarter century, dating from the beginning of the World War, is marking a change just as revolutionary and likewise affecting business and economics. Where 1815-1840 witnessed the reduction in travel time from a week to a day, the present quarter century is witnessing a further cut in the travel time for the same distance to one hour.

But while the spot-light at present is largely focused on passenger speed and the advent of long-distance mile-a-minute trains, the advance in freight-train performance is just as marked and must not be undervalued. From an average rate of 10.3 m.p.h. in 1920, freight train speeds

have been increased over 50 per cent; the average for 1935 was 16.1 m.p.h.

The national railroad income from passenger, mail and express service in 1935 was \$503,285,487, while from freight it was \$2,790,551,400. This is a ratio of \$5.53 received from freight for every dollar from passenger, mail and express. Incidentally, it should be noted that for the same period there were 389,091,231 passenger-train miles, as compared with 430,008,540 freight-train miles. Not a wide difference.

Just as American industry has made its greatest strides in cutting production costs and in increasing quality,

Table I—Accumulated Expenditure for Repairs of 25 Single-Sheathed Box Cars Six Years Old and 25 70-Ton Hopper Cars Seven Years Old

Type of car	S.S. box	Hopper
Car numbers .....	71,975-71,999	8475-8499
Wheel changes .....	\$218.87	\$744.18
Journal boxes .....	2.75	9.69
Journal bearings .....	125.71	64.94
Brake beams .....	105.14	3.35
Brake shoes .....	59.62	27.64
Truck parts .....	63.16	5.91
Brake rigging .....	45.56	11.99
Train line .....	16.58	26.00
Air hose .....	130.00	160.40
Angle cocks .....	4.05	16.90
Air brake cleaning .....	490.52	607.18
Hand brake .....	5.10	5.62
Sill step and safety appliances .....	171.07	34.64
Draft gear .....	109.99	25.39
Couplers .....	17.87	74.40
Yokes .....	...	36
Body .....	113.84	8.19
Doors .....	47.59	...
Hoppers .....	...	26.04
Floor .....	2.35	...
Lining .....	68.67	...
Underframe .....	4.42	16.98
Center Plate .....	8.70	...
Miscellaneous .....	319.25	519.75
Total Charges .....	\$2126.88	\$2389.55
Per cent home days .....	71	86
Per cent foreign days .....	29	14
Maintenance cost per day .....	.0389	.0382
Average age—Years .....	6	7

more so than in increasing output, so American railroads will find their greatest rewards in reduced freight costs by elimination of equipment failures and lower freight-car maintenance resulting in increased average freight speed. This elimination can be effected only by analytical methods. While observation methods serve as a good check, they cannot be relied upon, as an executive can only observe certain angles at infrequent times. If there is an unusual number of ordinarily infrequent repairs he may place undue emphasis, entirely overlooking something more important. Nor has the average executive enough time to make sufficient observations to determine repair and design policies correctly. Only with the aid of sufficient and accurate records can he act intelligently.

Some years ago, in making a check of freight-car

\* A paper presented before the New York Railroad Club on February 19, 1937.

truck costs, in order to get the complete record, it was necessary to secure "on-line" as well as "off-line" costs. Several railroads could supply complete "off-line" records, but none had full "on-line" records. The information was finally secured from a tank line that had no shop and, therefore, received detailed bills for every repair made. When a car needed general repairs it was moved to a contract shop where full information was

miscellaneous repairs only 2 were repeaters, the work in both cases being of a minor nature.

A further method of analysis came from a trucking concern that has made an enviable record in low maintenance costs and freedom from failures. They developed a "Pull-In" record which shows in detail the failures of equipment. By means of the detailed information thus gained they are enabled to place their finger on short-comings in repairs and definitely place responsibility, which is a prerequisite of efficient operation. Repetitions are carefully studied to a conclusion. If the repair work has been properly done and the failures occur generally, then it becomes a matter of design, and is so recognized. Reduced costs of maintenance are effected as much by design as by method. Often more.

The essential difference between this method and the detailed record shown in Tables II and III is that it shows the reasons for removing equipment from service for other than regular or periodical work. It gives a different angle which is of value.

**Table II—Detail Repairs of 25 Single-Sheathed Box Cars for the Sixty-Sixth to Seventy-First Months, Inclusive**

Car No.	Nature of repair	Location	Cost
71975	Air brake, acct. due—Repacking	N. Y.	\$8.34
71976	Knuckle lock	Mass.	1.62
71976	Brass—L2—Brake shoe	Mich.	2.00
71976	Brass—L4	N. J.	1.47
71976	Air brake, inoperative—Brake shoe	Ill.	5.26
71977	Air brake, acct. due	Vt.	4.73
71978			
71979	Air brake—Repacking—Air hose	N. Y.	11.58
71980	Air brake, acct. due—Air hose—Repacking	Mass.	9.73
71981			
71982	Air hose	Mass.	1.65
71982	Sill binder bolt	N. Y.	.20
71983	Air brake, acct. due—Rel. rod	N. Y.	4.83
71984	Knuckle	Mass.	3.63
71985	Air brake, acct. due	Mass.	4.73
71985	Repacking	Vt.	3.35
71986	Brake shoe	Maine	.53
71987	Air brake, acct. due—Brake shoe	Mich.	5.26
71987	Knuckle thrower	Mass.	.57
71987	Reweighting	N. Y.	4.15
71988	Air hose	Mass.	1.65
71989	Air brake, acct. due—Safety straps & brackets	Mass.	15.47
71990	Air hose—Safety straps—Sill step	N. Y.	5.33
71990	Air brake, inoperative—Car painted	N. Y.	25.08
71991	Side plates caulked	Mass.	1.50
71992	Dr. gears—Air brake due—Air hose—Repacking	Mass.	67.86
71992	C.P. shims—Floor—Lining—Paint'g—S. strap—Door rep.	N. H.	19.86
71993			
71994			
71995	Dr. gear—Air br. due—C.P.&T.S. shims—lining, paint'g	N. H.	61.19
71996	Air hose	Mass.	1.65
71997	Air brake, acct. due—Train line	N. Y.	4.99
71998	Air brake, acct. due	Canada	4.73
71998	Brake shoe	Mass.	.53
71999			

then available on repairs and general condition. With that study as a guide, a plan to study car costs by sample control was developed. Twenty-five cars from each series were stencilled "MTC" "AT HOME ON THE BOSTON AND MAINE." In this way the "off-line" bills were separated from the rest and "on-line" repairs were billed individually instead of being charged into the 314 pool account. These bills were assembled every six months and tabulated. This involved a surprisingly small amount of clerical work.

Complete records for 25 single-sheathed box cars six years old, and 25 70-ton hoppers seven years old, are shown in Table I. The first cars were built to the then A.R.A. plans, and the second series conformed to the A.R.A. as far as possible, there being no A.R.A. hopper design then. It is interesting to note the unusually low costs, due primarily to the splendid work of the Mechanical Division committees.

A six months' detail of the cost of maintenance of these two series of cars, separated by car numbers, is shown in Tables II and III. The record covers the box cars from the sixty-sixth to the seventy-second month and for the hoppers from the seventy-eighth to the eighty-fourth month. Of the box cars, 5 out of the 25 were never on the repair track during the entire six months' period. Ten were on for periodical air cleaning, or journal-box repacking only. Only 10 of the 25 were shopped for defects. Of these cars that were shopped for various defects, only six were repeaters.

The record of the 70-ton hoppers is even more striking. Ten were never on the repair tracks. Four were shopped for periodical work. Of the 11 shopped for

### Five Minutes Car Delay to One Minute Power Delay

In line with this method an analysis was made of one week's delays charged to equipment, shown in Table IV. It is interesting to note that while car delays totalled 1,151 min., power delays only amounted to 235 min. Of the 1,151 min., 438 min. delay were encountered in the yards before departure, while 713 min. occurred on the road.

For every minute of power delay there were over five minutes of car delay. These figures, while arresting, are logical when one considers that there are 75 cars to one locomotive per train. Yet, many roads "strain at a gnat and swallow a camel" in devoting the bulk of attention to engine failures, while accepting hot boxes and broken train lines as necessary evils. This attitude may be traced to the fact that there is little or no individuality to a car failure, as only one car out of each 381 cars handled caused a delay.

With detailed information in line with the aforementioned tables available, it is possible to proceed to the determination of the most economical designs and the

**Table III—Detail Repairs of 25 70-Ton Hopper Cars for the Seventy-Eighth to Eighty-Third Months, Inclusive**

Car No.	Nature of repair	Location	Cost
8475	Air brake, acct. due—Repacking—Rel. rod	Mass.	\$9.25
8476	Angle cock—train line	Mass.	1.60
8477			
8478	Train line	N. Y.	.60
8478	Release valve	Mass.	.48
8479	Release rod—hopper door latch	Mass.	1.77
8480	Air hose	Mass.	1.65
8481	Air brake inoperative—Release rod	Mass.	4.86
8482			
8483			
8484			
8485	Air brake, acct. due—Release rod	Mass.	4.96
8486			
8487			
8488	Air hose	Mass.	1.65
8489			
8490			
8491	Brake shoe	N. Y.	.53
8491	Air hose	Mass.	1.65
8492	Air brake, acct. due—Release rod	Mass.	4.93
8493			
8494	Repacking—Air hose	Mass.	5.95
8495	Air hose	Mass.	1.65
8496	Wheels—Brasses—Air brake inoperative—Rel. rod	Mass.	18.90
8497	Wheels—brasses	N. Y.	18.32
8498			
8499	Air hose	Penna.	1.65

correct methods of maintenance. Complacency in accepting records by reason of infrequent failures must be avoided. There must be a determination to achieve even better results.

In order to do this, it is essential that the men under-

stand the whys and wherefores of instructions, together with values, as well as do the executives who determine the policies. This is a matter of education. Education of the men is paramount in economical maintenance. Especially will this be true with the hiring of many new men to handle the increasing business. There is too much "sink or swim" in putting new men to work. The more the men know about the whys and wherefores of repair policies, the better and more intelligently can they do their work. Word of mouth takes too much time. Instruction pamphlets should cover all necessary phases in fullest detail. Demonstrations are also worth-while.

Average costs of material should be broadcast. Many men have not the slightest idea as to value of the material they use. My own personal checks have found impressions of value 500 per cent off. When men know the detailed costs of material, they are more careful in its use. It has been suggested that material be marked and tagged with costs, just as one finds it in many stores.

In line with the proverb that "the weakest link de-

signs. But there are other items that have comparatively short lives and these demand thorough study and analysis. Brake beams, train lines, air hose and journal brasses occur frequently in the failure list.

A check of purchases on a Class I road indicates a rough average life, as follows:

Air hose .....	1.16 years
Journal bearings .....	2.58 years
Brake shoes .....	1.96 years
Brake beams .....	3.71 years

The costs shown in Table I for modern cars indicate that the above service figures are being bettered but that there is wide room for further improvement. These needs are clearly indicated.

### The Four Principal Points of Attack

There are four principal things to be done to improve freight-car service:

*First*—The brake beams and brake rigging must be made rattle-proof. There is no fundamental reason why

Table IV—Analysis of Causes of One Week's Delays Chargeable to Freight Cars, January 1 to January 7, 1937

Yard								Road								
Date	Failure	Class					Min.	Failure	Class					Min.		
Jan. 1	Train line	TL	—	—	—	—	30	Hot box	—	—	—	—	—	HB	—	58
	Train line	TL	—	—	—	—	43	Hot box	—	—	—	—	—	HB	—	20
	Train line	TL	—	—	—	—	—	Sticky brakes	—	—	—	—	—	—	SB	30
	Train line	TL	—	—	—	—	40	Miscellaneous	—	—	—	M	—	—	—	—
	Train line	TL	—	—	—	—	15									
Jan. 2	Brake conn.	—	BC	—	—	—	35	Hot box	—	—	—	—	—	HB	—	63
	Brake conn.	—	BC	—	—	—	—	Hot box	—	—	—	—	—	HB	—	22
	Draw bar	—	—	DB	—	—	30	Sticky brakes	—	—	—	—	—	—	SB	35
	Train line	TL	—	—	—	—	—	Hot box	—	—	—	—	—	HB	—	20
Jan. 3	Wheels	—	—	—	W	—	15	Hot box	—	—	—	—	—	HB	—	65
	Wheels	—	—	—	W	—	—	Brake conn.	—	BC	—	—	—	—	—	—
								Hot box	—	—	—	—	—	HB	—	50
								Sticky brakes	—	—	—	—	—	—	SB	40
								Draw bar	—	—	DB	—	—	—	—	15
Jan. 4	Miscellaneous	—	—	—	—	M	10	Brake conn.	—	BC	—	—	—	—	—	17
	Train line	TL	—	—	—	—	30									
Jan. 5	Train line	TL	—	—	—	—	25	Train line	TL	—	—	—	—	—	—	20
	Train line	TL	—	—	—	—	15	Hot box	—	—	—	—	—	HB	—	15
	Train line	TL	—	—	—	—	20	Draw bar	—	—	DB	—	—	—	—	—
								Draw bar	—	—	DB	—	—	—	—	—
Jan. 6	Train line	TL	—	—	—	—	25	Hot box	—	—	—	—	—	HB	—	20
	Train line	TL	—	—	—	—	15	Brake conn.	—	BC	—	—	—	—	—	15
	Train line	TL	—	—	—	—	15	Wheels	—	—	—	W	—	—	—	20
								Hot box	—	—	—	—	—	HB	—	15
								Hot box	—	—	—	—	—	HB	—	10
								Draw bar	—	—	DB	—	—	—	—	73
								Sticky brakes	—	—	—	—	—	—	SB	13
Jan. 7	Train line	TL	—	—	—	—	45	Brake conn.	—	BC	—	—	—	—	—	32
	Train line	TL	—	—	—	—	—	Brake conn.	—	BC	—	—	—	—	—	20
	Train line	TL	—	—	—	—	30	Wheels	—	—	—	W	—	—	—	25
Total .....		TL	BC	HB	W	M	438		TL	BC	DB	W	M	HB	SB	713
		16	2	1	2	1			1	5	4	2	1	11	4	

termines the strength of the chain," a careful study should be made of the design of all members that cause cars to be shopped. A determination of their average life serves as a confirming check. From this study it is possible to forecast the future trend of detailed freight-car design. It is interesting to note that many members which have caused shopping of cars in the past have been perfected to the point where they only occasionally appear in the bad-order record.

Side-frame and bolster design has now progressed so that their life exceeds that of the car. It would not surprise me if their ultimate life would double that of the car body. Cast-iron wheels which averaged 634 years for the double-plate type have been improved so that the single-plate type will give much longer life. Steel wheels are likewise progressing in service life. Coupler yoke and draft gear life is approaching car body life in recent

a brake beam should not outlive a car body. They never wear out—they rattle out—principally in the brake head. Eighty-five per cent of the beams removed on one road required repairs to one or both heads. This wear can be minimized, or eliminated, by rigidly holding the brake shoe in the brake head. The wear in the hanger and lever connections can be reduced by improved metallurgy and closer limits of fitting. The prevention of rattle is also feasible. My firm opinion is that the near future will see brake beams outlive car bodies.

*Second*—Train line piping must be clamped rigidly enough to stand yard switching. Seventeen out of fifty failures are altogether too many for such a small item. Air-brake cleaning has been extended by the development of the new AB brake. The designers of this brake have given careful attention to the mounting. This attention

(Continued on page 372)



# Motor Transport Section



Trucks Loading at the Simcoe Street Station of the Canadian National at Toronto

## Building a Rail-Highway Co-ordination System

Canadian National simplifies tariffs as an aid  
in recovering merchandise traffic

### Part II

**T**HE pulse and center of the rail-highway co-ordination operations of the Canadian National, described in Part I of this article (Motor Transport section, *Railway Age* of January 23, page 191), are at Toronto, and the service there is most important to the success of the other operations.

For more than 75 years, the railway has provided cartage service at Toronto, as at other large centers, through the medium of privately-owned cartage companies, operating under agreements with the railway in each case. With the establishment of pick-up and delivery, however, on March 6, 1933, the situation changed, although the former arrangement is continued in effect on shipments not coming under the collection and delivery tariffs. On such shipments, the cost of cartage is borne by the shippers and receivers, at rates of 30 cents minimum for shipments weighing less than 300 lb., 40 cents minimum for shipments of over 300 lb., and 6 cents per 100 lb. for heavier shipments, usually light and bulky shipments being charged for at special rates. Thus, in Toronto, there has been a dual cartage arrangement in effect since 1933, covering, on the one hand, shipments under the P. & D. tariffs, on which the

railway pays the cost of cartage, and other shipments whereon such costs are borne by the shipper.

#### How Toronto Is Served by Truck

The accompanying map shows the outline of the trucking arrangements in Toronto and vicinity. It also shows the city limits and the cartage sectional subdivisions into which the city and its adjacent areas have been divided for operating and rate-making purposes. The stations serving Toronto are also shown on the map. These stations are as follows:

No. 1—Simcoe street—The principal station serving Toronto.

No. 2—Cherry street—Sub-station for shipping tonnage only.

No. 3—Danforth—Sub-station for shipping and receiving tonnage.

No. 4—Parkdale—Sub-station for shipping tonnage only.

No. 5—West Toronto—Sub-station for shipping and receiving tonnage.

No. 6—Leaside—Sub-station for shipping and receiving tonnage.

No. 7—Mt. Dennis—Sub-station for shipping tonnage only.

No. 8—Weston—Sub-station for shipping and receiving tonnage.

No. 9—New Toronto—Sub-station for shipping and receiving tonnage.

Practically all of the inbound tonnage for Toronto and the outlying area described herein is unloaded from cars at Simcoe Street shed. The tonnage for consignees within the city of Toronto is delivered direct from Simcoe street, and the tonnage consigned to consignees in the outlying districts is trucked in station-to-station movement to the freight shed concerned, where it is consolidated with such inbound tonnage as is received in cars at these stations, and thence delivered to consignees.

The handling of outbound traffic presents an entirely different problem than inbound freight, for the reason that the outbound tonnage is substantially greater in volume and in number of shipments than the inbound, and further, because 75 to 80 per cent of it is not available at the shippers' warehouses until between 4:30 and 6 p.m. Consequently, in order to serve the public better, the city and the adjacent area have been subdivided into several pick-up zones, as shown on the map, with pick-up vehicles operating in each zone. The zones are:

- Zone A—Simcoe street
- Zone B—Cherry street
- Zone C—Parkdale
- Zone D—West Toronto
- Zone E—North Toronto
- Zone F—Leaside
- Zone G—Mt. Dennis-Weston
- Zone H—New Toronto

Each zone, except Zone E (North Toronto), is served by a freight shed. These sheds, in addition to serving shippers who elect either to perform or arrange for their own cartage services, are utilized as collecting sheds by the cartage company. Zone E is a retail and residential section and the volume of traffic does not demand a shed. This area is served from Simcoe street. Railway cartage vehicles are assigned to each zone, except zone E as stated, and the vehicles operating in zone A deliver their shipments direct to Simcoe Street shed; vehicles operating in zones B, C and D deliver shipments to the zone shed up to about 4 p.m., and after that direct to Simcoe Street shed. The shipments collected from either owners or private vehicles or from cartage vehicles at the sheds serving zones B, C and D are, with the exception of certain shipments, trucked in station-to-station service to Simcoe Street shed; the exceptions being tonnage destined to larger centers which originates at Toronto in such volume as to justify the operation of through merchandise cars from the sub-station to the destination station. Shipments picked up in zones F, G and H are delivered at the zone shed, thence trucked in station-to-station movement to Simcoe Street shed, except in such cases where there is sufficient tonnage originating at either of these sheds to justify a through car. All cartage vehicles, whether operated in station-to-station services or in local cartage services, must arrive at Simcoe Street shed not later than 6:30 p.m. to insure same day loading into outgoing merchandise cars. This time was previously set at 5 p.m.

The cartage company operates between 80 and 90 motor vehicles in these cartage services. These vehicles include trucks, tractors, trailers and semi-trailers of dif-

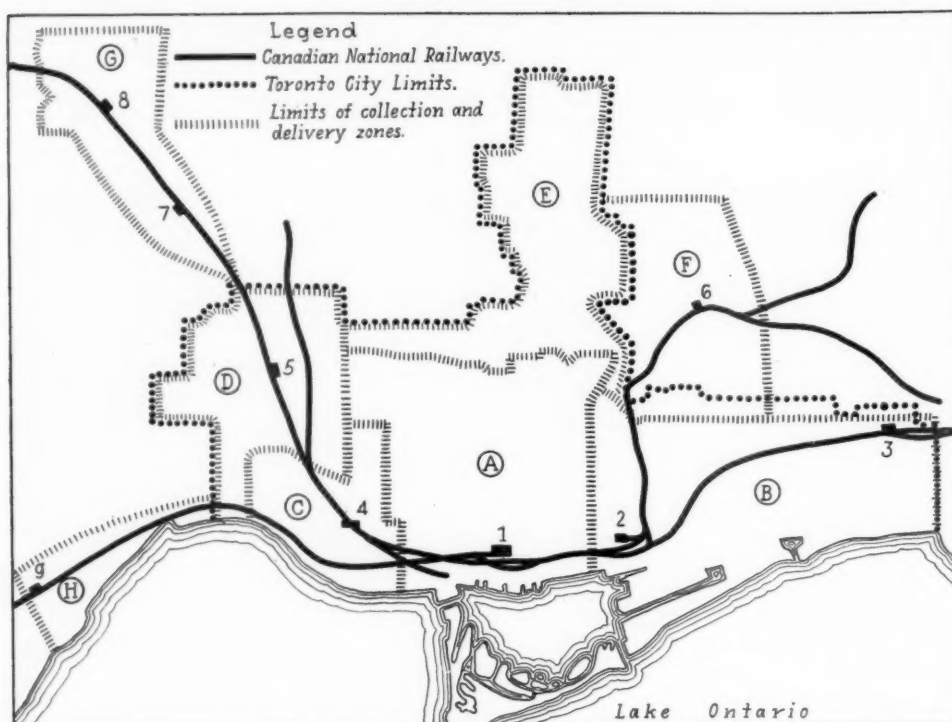
ferent capacities. Some of the equipment is of the van or closed type design, while others are open vehicles or platform racked vehicles.

### Handling of Trans-ship or Through Tonnage

Inbound merchandise cars containing trans-ship tonnage are placed at Simcoe Street freight shed for unloading or distribution. They are loaded in such a manner as to facilitate the unloading process, viz.: tonnage destined to Toronto proper and tonnage destined to consignees served by the truck routes from Toronto is loaded in the center of the car, and trans-ship or through tonnage is loaded in either end. The inbound and truck tonnage is given preference in unloading, and the trans-ship or through tonnage is trans-shipped from car to car during the period immediately following the day's deliveries and before the commencement of the receipt of outbound tonnage, or between 10 a.m. and about 4 p.m. By handling the tonnage in this manner, all trans-ship tonnage is trans-shipped on the same day it arrives at Toronto and no shipment, either trans-ship or through tonnage, or tonnage originating locally, received at the shed up to 6:30 p.m. is left over for the following day's loading. The Simcoe Street freight shed is of the U-type design; one wing or shed is used exclusively for



Freight Stations are Once More Busy Places on the Canadian National



How Toronto is Divided Into Districts for Truck Service. See Text for Key to Map

bonded or import l.c.l. freight and the other shed is used solely for domestic inbound and outbound l.c.l. freight. The bonded shed is served by three tracks, with a total car capacity of 57 cars, and the free shed with five tracks, accommodating 100 cars. Between tracks 3 and 4, there is a transfer platform with an umbrella roof. The movements average 107 cars inbound and 94 cars outbound daily. Some of the inbound cars are placed as early as 5 a.m., and the balance as received in the terminal. The outbound cars are switched, some at 6:45 p.m. and others at 7:30 p.m.

#### Rate Experiments

Paralleling the improved operations have been the revision of the rate structure and the simplification of tar-

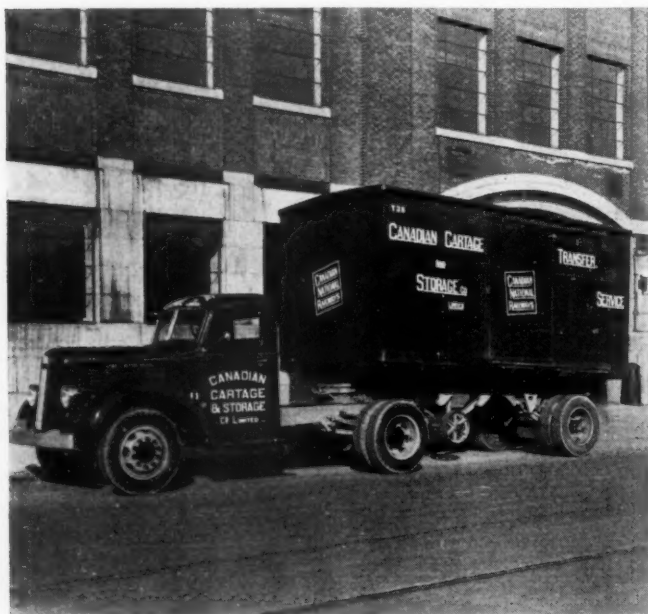
iffs and packing requirements. This has included the establishment of all-commodity rates in some areas, the quoting of special rates on shipments of 1,000 lb., 5,000 lb., etc., from one consignor to one consignee, and other innovations. The results of all these have been studied carefully.

The inclusive rate level is substantially less than the combination of the former multiple rates, plus cartage pick-up and cartage delivery rates; it also approximates a predetermined cost level for highway trucking, especially between more distant points. Furthermore, credit accounts are available to patrons who prefer to make settlements for freight charges either weekly or periodically, instead of at the time of delivering shipments to or receiving shipments from the railway cartage agents.

The new plan provides for a modernized system of tariffs, simple in structure, readily intelligible and designed to encourage the movement of merchandise. Standard packing requirements have been set aside, and articles are accepted when packed in such condition for shipment as to render their transportation reasonably safe and practicable. In this connection, the increased speed in handling merchandise and the elimination of much of the trans-shipping under the new operations have resulted in claim payments being little more than they were, and the increase, if any, has been by no means commensurate with the increase in tonnage.

#### The Rail Study

In studying rail-highway co-ordination, as well as in making rate bases for the traffic so handled, the Canadian National had available the cost studies of a large independent trucker who formerly operated in the territory served. Two rate plans have been employed in connection with this traffic for the purpose of comparison, one providing an all-commodity rate, the other classified rates. The all-commodity rate was originally made effective on March 6, 1933, at 52 stations in southwestern Ontario. It was extended on July 3, 1933, to include Toronto, Hamilton and Montreal, and was further extended on August 1, 1933, to include 50 additional sta-



Contract Trucks Provide Collection and Delivery Service



tions north and west of Toronto. On May 1, 1935, these rates were reduced on shipments of 1,000 lb. or more, followed, on May 6, 1935, by still lower rates for shipments of 5,000 lb. or more between Toronto and Montreal. The special classified rates were made effective on May 1, 1935, at 201 stations in the area between the Windsor and Niagara frontiers and Quebec City and North Bay. The rates are restricted, however, to traffic between stations not more than 375 miles apart.

Both rate plans have been checked carefully in numerous ways, and statistics for test periods show that the revenue result for each 100 lb. of freight handled is substantially the same for each plan, when compared with the former system. It is interesting also to note that the all-commodity rate appears the more successful in bringing back short haul tonnage to the railway.

### Reduced Rates for Heavier Shipments

Large increases—up to 130 per cent on certain classes of traffic—have been shown under the reduced rate plan for shipments of 1,000 lb. or more, and 5,000 lb. or more, from one shipper to one consignee. On this, as on the other rate plans, the agents have kept careful records, and at 24 of the 28 principal stations, they report that these rates have been instrumental in attracting much traffic from highway competitors. The other 4 agents report that, because of local conditions, the rates have made little or no difference in their merchandise traffic volume.

The list of commodities attracted to the railway from the highway competitors by these rates is important and interesting. It includes: machinery, corrugated iron, lumber, asphalt, shingles, house trim, canned goods, flooring, handles, baby carriages, wheelbarrows, brooms, condensed milk, paper, seed, butter, hides, honey, furniture, castings, cereals, oil, paint, burlap bags. In other words, the frequently expressed fear that such rates would attract only light, bulky freight, or freight that the trucks did not want, has proved to be unfounded.

The Canadian National is not yet committed to any one system or plan for meeting highway competition. In the last three years, many experiments have been made, and voluminous and valuable data gathered as to the results. While a large tonnage of merchandise has already been returned to the rails by reason of this rail-highway co-ordination and the various rate and tariff simplification plans, the experiments will be continued under close supervision to determine the results.

## Pennsylvania Collection and Delivery Leaflet

**A**S DESCRIBED in these columns some months ago, the Pennsylvania has developed an elaborate and successful campaign for advertising its collection and delivery service. The most recent move in this campaign is an attractive edition of "Train Talks," a monthly publication which is distributed to passengers on Pennsylvania trains.

"You lift your telephone," the booklet says. "You speak a word to the nearest Pennsylvania freight agent. A competent local trucker, acting for the railroad, calls at your store, factory, mill or home. He takes your shipment and turns it over to the railroad. A swift train speeds it to destination. Another trucker at once delivers the shipment to the door of your consignee.

"For this great convenience you pay no extra charge!

"You pay merely the regular station-to-station rate. You get complete transportation service and with no effort required on your part but to order it performed. You can ship in this way a single package, or a large or small quantity of almost anything, in less-than-car-load lots, subject to a minimum rate."

The booklet, which is illustrated to show the various steps in rendering the new service, emphasizes the fact that this form of transportation utilizes the truck to make possible the much desired feature of pick-up and delivery at the door, while the railroad is used for the inter-city haul "for which purpose," "Train Talks" says, "it provides superior speed, greatly reduced risk of damage, greater dependability and the capacity to operate practically regardless of weather conditions."

Particular attention is also drawn to the fact that only truckmen of the best standing are employed in furnishing this service, and the railroad assumes complete responsibility for every step from the time the goods leave the shipper's door until they are delivered to the consignee.

## Trucking for Hire In the United States

**T**HE sum of \$530,860,000 was received in 1935 by 61,216 motor trucking companies in the United States, according to the summary of regional reports compiled by the Bureau of Census, United States Department of Commerce.

The 61,216 companies reported an average of 158,283 persons on their payroll for that year, and a total payroll of \$179,485,000. They operated in October, 1935, a total of 188,809 vehicles, that month being chosen as representative for the year. Stand-by equipment was not included in the count, but semi-trailers and tractors were considered as separate vehicles.

There were five states (New York, California, Ohio, Michigan, and Illinois) which reported more than 35 million dollars revenue each. New York led with \$61,854,000 which was 11.7 per cent of the total revenue for the United States. California was second with 7.9 per cent of the total, followed by Ohio with 7.8 per cent, Michigan with 7.0 per cent, and Illinois with 6.9 per cent. These five States combined, accounted for 41.3 per cent of total revenue. The East North Central States (Illinois, Indiana, Michigan, Ohio, and Wisconsin) with \$147,853,000 revenue (27.9 per cent of the total) led all other regions. Middle Atlantic States (New Jersey, New York, and Pennsylvania) were second with \$107,704,000 or 20.3 per cent of the total. These two regions comprising the northern tier of states between the Atlantic ocean on the east and the Mississippi river on the west, accounted for almost one-half of total trucking revenue.

Analysis of the data for local, intrastate, and interstate truckers shows that 74.6 per cent of the trucking companies reporting were engaged primarily in local operations, 16.7 per cent in intrastate, and 8.7 per cent in interstate trucking. In terms of annual revenue, however, interstate operators accounted for 36.9 per cent of the total. Revenue from all sources for local truckers was \$2,120 per vehicle operated, as compared with \$3,069 for intrastate, and \$3,926 for interstate operators. The relative importance of local, intrastate, and interstate trucking varied considerably in different regions. Interstate truckers in the South Atlantic states did 53.8 per cent of all for-hire trucking in that

region. The relative importance of intrastate trucking was greatest in the Pacific region. A summary of data by kind of trucking follows:

	Total	Local	Intrastate	Interstate
Number of Companies	61,216	45,685	10,217	5,314
Gross Revenue	\$530,860,000	204,127,000	131,017,000	195,716,000
Number of Vehicles	188,809	96,269	42,692	49,848
Proprietors	59,621	44,821	9,983	4,817
Employees	158,283	68,516	37,561	52,206
Payroll	\$179,485,000	70,717,000	42,473,000	66,295,000
Other Expense (Not including depreciation)	\$243,127,000	78,324,000	61,844,000	102,959,000

By far the larger number of truckers were small operators. Almost one-third (31.9 per cent) of all companies received less than \$1,000 per year, but accounted for only 2.0 per cent of total revenue. Operators receiving from \$1,000 to \$1,999 per year represented 27.4 per cent of the total number, but received only 4.4 per cent of total revenue. Those companies receiving from \$2,000 to \$4,999 per year represented 21.7 per cent of the total number and received 7.4 per cent of total revenue. Thus, 81 per cent of all companies received less than \$5,000 annual revenue, but accounted for less than 14 per cent of total revenue.

There were 904 companies or 1.5 per cent of the number reporting, whose annual revenue amounted to \$100,000 or more. These received almost one-half (45.8 per cent) of all trucking revenue; they operated 29.5 per cent of the total number of vehicles, accounted for 42.6 per cent of all paid employees and 52.5 per cent of the annual payroll. There were 274 companies that received \$250,000 or more per year. They represented less than one-half of one per cent of the total number, but received 27.7 per cent of the total annual revenue. Ninety-six companies or less than two-tenths of one per cent of the total number received \$500,000 or more; they accounted for 16.1 per cent of total revenue.

The figures presented in the summary were taken from reports obtained through a field canvass carried out as part of the census of business for 1935. The figures thus obtained, the report points out, do not measure the full amount of for-hire trucking. It continues to explain in this connection that many individuals and companies primarily engaged in retail or wholesale trade, warehousing, garage operation, etc., may also haul commodities for others and make a

specific charge for such transportation. Trucking for hire carried on as a subsidiary operation is not included in the survey. Neither is trucking for their own account done by business and farm operators. In addition, some of the small truckers who operate from their homes were not canvassed.

A final trucking report to be issued in May will give more complete and detailed information about the business. Facts to be presented include the number of trucking companies reporting warehousing revenue and the amount of such revenue; the amount of revenue from local, intrastate, and interstate trucking; monthly employment figures; employment data for one week, showing the number and compensation of different functional employee groups; a detailed inventory of equipment by type of vehicle, capacity, and age.

## Equipment For Mountain Operations

**B**ETWEEN Helena, Mont., and Drummond the truck line of the Northern Pacific Transport Company crosses the continental divide via McDonald pass, at an elevation of 6,325 ft. The truck and trailer used on this run, shown in the accompanying illustration, make a nightly round trip winter and summer, crossing the pass twice each 24 hr. The unit is used in handling general merchandise between Helena and Drummond, at which latter point connection is made with the transport company's through semi-trailer units operating between Butte, Mont., and Kalispell, via Missoula. The truck is a six-wheeled International, with a double-axle drive, adapted to the severe topographical and weather conditions. The trailer body was built by Eckland Brothers Company. It has a capacity of 12 tons, and the framework and paneling are of aluminum alloy. The inside dimensions are: Length 21 ft., width 89 in., height 72 in. Because of the cold encountered during the winter in the Rockies, the body is insulated with 2-in. Dry-Zero blankets in the roof, sides and ends, and provision is made for heating in extreme, sub-zero weather.



This International Crosses the Continental Divide Twice Daily



# Rail-Highway Co-ordination Succeeds in England

Relatively shorter hauls in Great Britain make competition keen—Regulation has proved a great benefit

## Part I

**T**HE British railways have always regarded themselves as transportation machines, rather than merely as railways, and they have large investments in docks, steamers, hotels, and, of recent years, in highway vehicles and airplanes as well. Their aim has been to give the shipper and receiver complete door-to-door service.

Although engaged experimentally in rail-highway co-ordination prior to that time, the impetus to such activities occurred in 1928, when the British railways were

the licenses of limited carriers were made subject to review and possible cancellation each year, and of public carriers every two years.

Commercial highway vehicles operating in Great Britain numbered 460,000, under 224,771 licenses, or an average of 2.05 vehicles per license, as of April 30, 1936, according to a report recently issued by the Ministry of Transport entitled "Licensing of Goods Vehicles". Of the total vehicles licensed, 9,140 trucks and 3,549 trailers are operated under licenses held by the railways but this



Types of Equipment Used in British-Rail-Highway Co-ordination

given full road powers, to operate, or share financially in highway transport. In 1930, a Road Traffic Act was passed, licensing bus services and bringing about, eventually, a complete stabilization of the industry. The railways then decided not to operate buses directly, but they have invested 45 million dollars in the largest bus operating companies, through acquiring stock. There is still competition in the bus field, but bus companies allied with the railways operate most of the buses in Great Britain. This stabilization of the passenger business was extremely important to the British railways, since passenger traffic supplies approximately 45 per cent of their total revenues. The business has grown to such an extent that, on a recent week end, 1,900 buses left one station in London alone, and most of the tickets sold were available either on the buses or the railroad for the return trip.

Truck operations were brought under licensing authorities by the Road and Rail Traffic Act, of 1933, under which there are three categories—the public carrier, the limited carrier and the private carrier. All operators were covered by a "grandfather" clause, but

number is said to be very misleading when considering the total number of vehicles controlled by the railways. About 70 percent of the licenses registered were "C" or private carrier licenses, which entitle the holder to use authorized vehicles for the carriage of goods in connection with any trade or business carried on by him but not for the carriage of goods for hire except in certain specified circumstances. These licenses are current for three years. "B" licenses are the next most numerous. They are "limited carriers" licenses and entitle the holder to use the authorized vehicles for the carriage of goods either in connection with a trade or business carried on by him or (subject to any special conditions attached to the licenses) for hire. The normal currency of these licenses is one year. It is stated that no trucks are operated by the railways under "B" licenses. "A" licenses, that is, public carrier licenses entitling the holder to use the authorized vehicles for the carriage of goods for hire and in connection with his business as a carrier of goods, but in general for no other purpose connected with the carriage of goods, were almost as numerous as "B" licenses. A statistical table appearing in the report





Type of "Articulated" Equipment  
Used in Collection and Delivery  
Service

mentioned above, breaking down the number of licenses according to the classes of goods authorized, indicates that more than 40 per cent of the "B" licenses were granted to colliery proprietors or coal, coke and peat merchants. Only 6.5 per cent of the licenses were granted to farmers, dairymen or livestock dealers.

In the hearings preceding the issuance of licenses, the railways practice is not to oppose too vigorously haulage concerns desiring to operate within a 30-mile radius only. They do, however, strongly oppose directly competing services for longer distances, and in this opposition they are supported by the existing highway truckers. The authorities have been successful in producing stabilization by stringency as to overloading, speeding, journey records, hours and condition of work, and safety, but there is as yet no direct regulation regarding the rates to be charged.

The Road and Rail Traffic Act permits the railways to quote "agreed charges," that is, a charge covering all of an individual shipper's rail traffic, based on his payments over a previous period. These rates are quoted on a unit basis, per ton, per crate, per box, per case, or whatever the normal shipping unit may be. It has been found that such rates do not lower the general level of rates, but they do reduce clerical costs for both the shipper and the railway, and they are quoted on the basis that, within certain limits, all the shipper's traffic will be shipped by rail.

### The Container System

There are now in service no less than 11,240 containers on the British railways, whereas in 1928 there were only 1,574. As indicating the rapid rise to popularity which this transport system has achieved, the number of container movements in 1934 show an increase of 146 per cent over those in 1930 and 700 per cent over the movements in 1928.

The container was first used in England before the War, when closed horse-drawn cars were loaded on specially arranged platform rail trucks, but in 1926 the container system was definitely introduced. Fixed station cranes, yard gantries, runways, and mobile cranes, which are available at a large number of railway stations, enable containers to be moved from rail to road vehicles and vice versa with speed and efficiency, and the dimensions are kept within such limits as to permit of them being loaded inside ordinary cars.

New overhead cranes have also been installed at sev-

eral of the principal London stations to speed up still further the handling of container traffic. The siding accommodation under the cranes permits of the positioning of 120 to 130 container loads, the delivery of which can be effected without any switching movement.

### Collection and Delivery

The railway operated fleets of motor vehicles are primarily engaged in collection and delivery, and, as indicated by the figures given below, the fleet is a huge one. In addition, the railways have more than ten million dollars invested in allied trucking concerns. Collection and delivery is virtually universal, but a shipper cannot pick and choose the traffic. He must collect and deliver his own goods, or leave it all to the railways, thus preventing the shipper collecting and delivering the easily handled boxes and leaving the pianos and other bulky material for the railway.

By the co-ordination of their road and rail services, the railways now concentrate at one particular station the merchandise traffic that was formerly handled at a number of neighboring stations, and deliver the traffic between the concentration points and the destination by highway truck, avoiding much trans-shipment and many delays. By this means also, it has been possible to render to customers, whose factories are on the outskirts of large industrial areas, a service equivalent to that given the more centrally situated factories, by dealing with their traffic by highway truck instead of by trap car.

In addition to the collection and delivery of rail traffic, the railways also undertake transport by road where the nature of the traffic or area of movement does not lend itself efficiently to rail conveyance. They are also equipped for carrying out door-to-door or works-to-site conveyance of large and unusual consignments, as well as being in position to undertake the complete removal of factories, including plant, fixtures and stock. Their service in this connection also includes the dismantling and re-erection of machinery.

In many parts of the country, local authorities are undertaking extensive drainage and sewage schemes, which involve the laying of miles of pipes. The railway companies undertake the cartage of pipes for these contracts, arranging deliveries at various points on the route of the pipe line. In a similar way, the delivery of cable and standards is arranged in connection with electricity development schemes.

The agricultural areas are admirably catered to by the

British railways, whose country truck services give the farmer in the outlying districts a collection and delivery service practically the equivalent of that afforded in the densely populated industrial areas of the country. The seasonal requirements of the agricultural areas are important and, during the various fruit, vegetable, and flower seasons, the agricultural shows, and the sugar beet season, the heavy demands are met without difficulty.

Apart from the large number of trucks owned and operated by affiliated companies, the number of highway trucks owned directly by the British railways is somewhat over 10,000, and trucks are purchased by them at the rate of about 800 per year. This fleet includes vehicles of all types ranging from light vans to 12-ton trucks, together with a large number of special purpose vehicles. The greater part of the fleet, however, consists of the 2-ton and 4-ton vehicles, which are used principally for maintaining the regular collection and delivery services.

A noteworthy development in the British railway fleet is the increasing use of articulated vehicles, or "mechanical horses," as they are called in England. There are more than 2,500 of these in use, representing about 25 per cent of the total fleet. These three-wheeled tractors, to which a trailer can be attached, have increased tenfold in railway service during the past four years.

### Feeding Eight Million People

Some of the British railways' outstanding motor transport rail-highway co-ordination operations are to be found in handling foodstuffs into London.

The task of feeding the 8,000,000 people who form the population of Greater London is no easy matter, and because of the variety of their equipment and their ability to carry with ease and speed all descriptions of perishable foodstuffs, it is to the British railways and their elaborately developed motor transport subsidiaries that Londoners look to insure that their daily needs are met. With a chain of docks, harbors and wharves situated at 77 places, and a network of railway lines, the British railway services bring foodstuffs to the metropolis from all parts of the world, and by co-ordinating rail, highway and container services, the problem is solved.

Bacon, butter, cheese, chocolate, eggs, fish, flour, fruit, milk, meat, potatoes, poultry and vegetables, to mention only a few primary articles of food, travel by railway in large quantities and their journeys to the points of consumption are an interesting study. Overnight express freight trains, working on carefully prepared time schedules, arrive at the vast London railway freight depots from all large centers, agricultural areas, docks and ports. Many of these trains are loaded with hundreds of tons of foodstuffs, and the arrival times are arranged so that all types of produce are delivered by railway motor trucks at the principal London markets and traders' premises in the early hours of the morning, in time for opening sales.

London's meat, for example, apart from direct shipment, comes principally from Aberdeen, Birkenhead, Liverpool, Southampton and the west of England. Regular daily meat trains run from these places, some of which are 400 miles from London, and meat dispatched during the day is on sale at Smithfield market the following morning at an hour when London is still asleep. Specially fitted containers are now employed extensively for the transport of London's meat. These door-to-door covered receptacles are equipped with hooks on which the carcasses of meat are hung to allow of a free circulation of air and to insure delivery in the markets in per-

fect condition. Special meat containers are a comparatively recent innovation; yet during the year 1935, 20,264 loaded containers were handled at London's meat receiving stations.

In maintaining the movement and distribution of London's food supply, the railways make advance arrangements for meeting the varying requirements of the moment throughout the year. Programs of special train services are arranged weeks and even months ahead to make sure that there shall be no failure to provide facilities when the demand arises.

Express fruit trains arrive in London from the ports all the year round, and from the producing areas according to season. An enormous quantity of fruit traffic such as apples, bananas, oranges and other citrus and deciduous fruits, is imported annually into Great Britain. The British railways have provided more than 3,000 insulated banana cars fully equipped with steam heating facilities, and special ventilators are incorporated to maintain the temperature inside the vans at a suitable level according to the season of the year. Many special trains made up entirely of these cars are run daily from Avonmouth, Garston and Southampton to London, and during 1935 approximately 300,000 tons of bananas were carried by the British railways.

### Fruits and Vegetables

London's potatoes come from the agricultural districts of England and South Scotland frequently in train loads. During May, June and July the quantities of new potatoes from the Channel Islands necessitate the running of special trains from Newhaven, Southampton and Weymouth to London. From December to April greenstuffs are brought from the market garden districts and increasing quantities of broccoli from Cornwall and Kent. The Cornish broccoli traffic has shown a remarkable development during recent years, and the trains are run at express speed. On arrival, railway motor transport equipment is available for delivery of the traffic to the market. Forced rhubarb from the West Riding of Yorkshire is another perishable commodity which the railways bring to London in large quantities in the early part of the year. The green pea season extends from June to September and special trains carry the peas in net bags from producing areas to London.

Soft fruits such as raspberries, strawberries and plums are handled by the operation of special services. The



British Railways Handle a Large Traffic of Household Goods in Containers



arrival at the London termini is linked up with the railway motor transport organization so that the fruit is delivered to the markets in the shortest possible time.

Milk is another commodity which is conveyed in huge quantities by rail to London with unceasing regularity. During the last few years the transport services for milk have been considerably extended and improved. Large glass lined milk tanks, each capable of carrying 2,000 to 3,000 gallons of milk, are conveyed on railway chassis fitted with automatic brakes, and these, as well as cars carrying hundreds of containers are run by special trains to London. Many special milk express trains are run nightly to London and at one of the principal milk depots in the metropolis, which is claimed to be the largest and most up-to-date in the world, an average of 17 tanks and 900 containers of milk representing 60,000 gallons are delivered by the railways daily. The use of motor trucks in the collection and delivery of this traffic has previously been described in the *Railway Age*.

The British railways have built up a service of more than 600 express freight trains every 24 hr., most of which are run at night, for the sole purpose of conveying foodstuffs of a perishable nature, and are able to deal successfully with the millions of tons of food which they are called upon to carry each year.

## New Light Truck

**T**HE Reo Motor Car Company has announced a new truck for fast delivery of merchandise. It is available in ½-ton and ¾-ton models. The truck is equipped with an all-steel cab and safety glass throughout. It is available with either the new four-cylinder or six-cylinder Reo Silver Crown engine, the six for fast highway transportation and the four for greater economy in multi-stop work. It may be obtained on a wheelbase of 114 or 120 in. It offers unusual loading space and good load distribution, streamlined appearance, chromium-plated radiator grilles, modern front fenders and individual running boards. Both sections of the V-windshield can be opened, while the side cowl ventilators and large door windows give additional cab ventilation. Airplane-type instruments are grouped on the driver's side, these being matched by a large package compartment on the opposite side of the dash. The drivers' seats are adjustable in both cabs and panel bodies.

## Build Freight Cars to Run

(Continued from page 363)

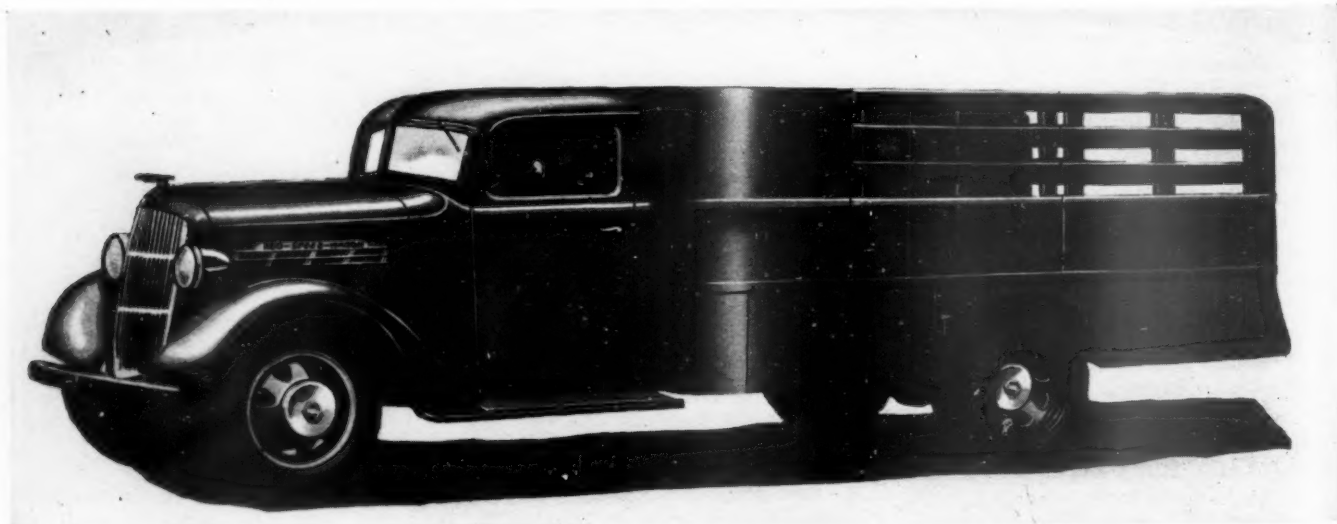
must be extended to every inch of the piping and fittings.

*Third*—Air-hose life is woefully short. It is surprising to find how few are removed on account of aged rubber. Examination of removed hose discloses numbers less than a year old removed by reason of tearing, particularly at the angle-cock nipple. There is a cutting action at the edge of this nipple when hose are not uncoupled in cutting cars. Trials are now being made with nipples with rounded edges.

*Fourth*—Not by any means the least part calling for development is the journal-box assembly. Until recently this arrangement had carried on for years with no essential change. Repacking is being done about once a year, Rule 66 requiring it at 15 months (and at 12 months when on repair tracks). But with the extension of air-brake cleaning periods and improvement in general design, a 15-months' limit will become untenable. In increasing this repacking period, the box must be made tighter front and back. The latest A.A.R. requirement for journal-box lids, requiring closing spring pressure to be exerted at the center of the lid, is a distinct advance over the old flat spring lid. The latter wedged out the top and gave a free opening for dirt. Further refinements are possible. The dust guard has stood still for years. Many experiments have been made but the field is still comparatively wide open for improvements. The refinement of wedge faces and the broaching of the bearing surfaces are meeting with increasing favor. New designs of journal brasses, conforming to A.A.R. dimensions and yet giving better lubrication are coming into use. The specifications for waste and oil must be tightened up to go along with the lengthening of the repack period.

The ideal car is one in which the life of each component part approximates the life of the car as a whole. In practice, cars must be painted at periodical intervals to protect the metal properly. This interval should be the minimum life obtainable in any component part. Between repaintings only necessary periodical work should remove the car from revenue earning service.

It is entirely possible to design and build freight cars that will run at least one year, and probably more than two years, without going on a repair track. This is an attainable goal. It is necessary that it be achieved to enable American railroads to give the best possible service and to properly meet competition.



Reo's New Model for Fast Merchandise Handling



# Communications and Books...

*The Railway Age cannot publish letters from readers who do not supply their names and addresses. Names of correspondents are not published, or disclosed even upon inquiry, unless the correspondent consents. But they must be given us as an evidence of good faith.*

## Salutations to Kentucky & Indiana Terminal!

LOUISVILLE, KY.

TO THE EDITOR:

I have read with much interest the article appearing under the caption of "Service Restored Rapidly as Ohio Recedes", in the February 6 *Railway Age*. I notice, however, that a most deserving terminal railroad was left entirely out of the account of assistance rendered by the different railroads in Kentucky during our flood period.

The Kentucky & Indiana Terminal was most efficient and did much valorous work the entire period of this flood. It was through K. & I. assistance that the Monon was able to operate. It was through the K. & I. that the Southern was able to operate out of Louisville, it being the only railroad operating out of Louisville that had a direct connection to the South.

Mr. Campbell, vice-president and general manager of the company, never left the property during the entire flood. When all communications and other things imperative for railroad operation were completely cut off Mr. Campbell stood diligently by, not in his office but in the yards, seeing the trains move. He worked with the Mayor's committee seeing that coal was furnished to people, seeing that food was properly brought in and properly handled from cars to boats. Switching crews were marooned at the Magnolia yards, being cut off entirely from all communications with the general office, but were able to handle freight between some of the industries and the L. & N. shops in South Louisville.

I am not writing this letter in criticism, but only as information to you so that the *Railway Age* may be able to give proper credit to one of the greatest railroad terminals, with its efficient management and employees, that now exists in the United States, whether in time of trouble or during normal conditions.

K. & I. EMPLOYEE.

## A Trainman Replies To Richards' Criticisms

TO THE EDITOR:

After reading Clarke A. Richards' article, "See Yourself as Your Passenger Sees You," (*Railway Age*, January 30), I am moved to answer it from the experience of a trainman employed by an eastern railroad for many years. We trainmen and conductors need the public's patronage, but our lot would be an easier one if the passengers who use our transportation systems would be a bit more humanitarian, and intelligent enough to consider the train crews just a little more than they do.

I enjoy my work as trainman and must say, without bragadocio, that I have always endeavored to extend to passengers all the courtesies and assistance that I possibly can—this for two reasons, viz.: first, to keep up my train efficiency for my employer's benefit; second, for my personal satisfaction in the performance of my duties to the best of my ability.

**Trainmen say "Thank you," But Passengers Do Not**

Conductors with whom I have worked always say "Tickets, please!" At times when I have assisted the conductor in collecting tickets, I have always courteously said, "Tickets, please," and, "Thank you." On the other hand, there have been numerous times when passengers, when asked, "Tickets, please," have replied in a decidedly aggressive tone, "I gave it to you

once, what do you think I am trying to do? Beat my way? It's a wonder you don't know your business."

Knowing positively that I had not received the ticket, using all courtesy, I have asked again, but with no civil answer from Mr. or Mrs. Passenger. After checking up with the conductor to make sure that no mistake has been made, I have told the passenger that he still has the ticket. Then the irate passenger uses anything but courtesy in reply. Without betraying feeling and reasoning most graciously, I plead with the passenger to look in his pockets or purse. Some indignantly refuse. Finally, succumbing to my pleading, he looks in his pocket or purse and finds it right there, much to his chagrin—and, of course, no apologies forthcoming either. But I suppose from the passenger's point of view we have to take it without apologies. Remember, there are two sides to every situation—Mr. Richards speaks for himself and fellow passengers; I for myself and fellow trainmen and conductors.

### Trainmen Are Human Beings

This, of course, is just one example of many that we encounter while we are on duty. When we have several incidents like that in the course of our trip, it is a wonder that we have any courtesy left, but we have to forget and smile just as if nothing were wrong. We also are human beings, having feelings and emotions, and likewise appreciate courtesy in return. Do passengers ever consider that perhaps there is a cause for discourtesy on the part of train crews?

I think the public, too, should be educated as to how to travel courteously and conveniently and in cleanliness. Does Mr. Richards mean to state that the traveling public never abuse a trainman verbally? Are they always perfect as to courtesies and use of railroad property while en route? Should that be his opinion, I beg to differ. I have worked on the railroad 21 years and have encountered many rude and vulgar passengers. Yet I have once to say to myself that I have not been a gentleman, yes, even under the most trying circumstances.

Many passengers with whom I have come in contact are most appreciative of any service rendered them. This type of passenger deserves all the courtesies and assistance that any trainman or conductor can give. I also have met passengers who have not hesitated to let the railroad officials know that I have performed my duties efficiently.

As for assisting passengers with their baggage, my answer is this—that so far as it is humanly possible we help all elderly passengers first, next women with children, then if time allows it, men heavily laden. It is humanly impossible to assist each and every individual who has three or four or even more pieces of luggage. Do they realize that a coach is not a baggage car? Should they use a bit of common sense they would find it very convenient to check their luggage, thereby making it safe to walk in aisles, or safe to sit in a seat without fear of being hurt by a heavy piece of baggage falling from the overhead rack—not to mention the ease it gives to the passenger to have the baggageman perform his assigned duty.

The racks are for parcels, hats or small hand bags and not for heavy suitcases or semi-trunks. If the passengers find it impossible to carry excessive luggage on and off the train, then why not check their luggage, Mr. Richards? Is a trainman a superman to perform a feat which a passenger cannot do himself? Then multiply that feat by some hundred or more passengers. The duties of a trainman are to answer all questions, announce the stations, assist the conductor, lock and unlock toilets where necessary, as prescribed by the laws of the state and bureau of health, being courteous to passengers and keeping the aisles clear of baggage, figuring out room reports, so that cars may be added or detached at certain points if needed, watching flag stops so that we may receive or discharge passengers, at the same time observing the movement of the train. This means that we look out on curves at intervals to see that brakes are not sticking, or wheels sliding, or journals running hot or whether other defects may have developed. These duties promote the safety of passengers as well as that of employees

who are handling the train. There are other duties that may require attention, such as air conditioning, heating and many more items with which passengers are not acquainted. Added to those, a trainman having several day coaches to look after, or a train consisting of about ten or more cars, if he is on the job, has plenty to do and no time to visit.

#### Trainmen's Job a Busy One

Our work is classed above common manual labor. We must know all the rules and regulations, which are many. If we work on main lines, which most of us do, our territory consists of several branches and we must know several hundred miles of tracks, curves, bridges, overhead or ground bridges, every break in the main tracks, such as crossovers, sidings, business tracks, yards, telephones, signals of various types, their location and meaning. All these facts must be known by train crews, along with many more too numerous to mention. Mr. Richards says that some men are schooled to be courteous, while others destroy the courtesies. The reason for this is that we have many types of people to make up our world. This applies to passengers as well as employees. There are some employees whose interest lies solely in the job and two weeks' pay; others are satisfied in the particular bracket that they are in and perform their duties to the best of their ability and do not seek any further advancement; others perform their duties more efficiently and courteously than the average in any occupation. This type seeks advancement, but may never obtain it.

Judging Mr. Richards to be a man of more than average intelligence, what is his answer regarding us? Should we be porters? If so, our caps and uniforms should designate our duties. Porters' wages are low, and no doubt they try to be courteous to receive a tip. If we assist a passenger we don't look for tips—at least I don't. All I ask is a pleasant thank you. As for keeping baggage in aisles, we don't allow it; we dispose of it as soon as we can for several reasons,—first, for the safety of passengers, and second, to protect the company for which we work from lawsuits involving damage claims because of accidents due to the aisles being crowded with luggage by careless passengers. As for cleanliness, ask yourself if the traveling public doesn't use the coaches as they do their homes. Some are tidy, some are otherwise. Trainmen cannot clean coaches while en route and still carry out the rest of their compulsory duties. A trainman is not superhuman—he can do so much and no more.

Timetables are available at all stations and ticket offices and information desks. Should a passenger by chance forget or not have time to get one before boarding a train, there is a supply in the coaches. Should that supply be exhausted, we procure them gladly at the next station stop. Oftentimes without a thank you for Mr. Trainman. The public take it for granted that we are their servants.

#### Smokers Resent Being Policed

Mr. Richards speaks of smoking. Most coaches have signs "smoking or spitting prohibited", yet many passengers ignore these signs and deliberately smoke and spit in coaches. Then, when a trainman is obliging enough to remind them to consider the non-smoking passengers and direct them to the smoking car compartment in a courteous manner, he receives a volume of abusive language from some of these passengers. He must say nothing in reply. Why? If he does so, he is driving business away. Smoking passengers are highly insulted, and enter a complaint, when we call their attention to regulations. Even non-smoking passengers also enter complaints about Mr. Crabby Trainman. I have had the experience that smoking passengers defiantly lit cigars or cigarettes after being most courteously reminded of the offense, when my back was turned. What is the cure, Mr. Richards? Is it not to educate people how to travel, or perhaps to observe the Golden Rule? Or shall the railroad hire detectives to enforce law and order in each car?

Mr. Richards remarks about starting and stopping trains. I dare say that the majority of engineers, and perhaps all of them, strive to avoid abrupt or sudden starting and stopping. Sometimes an unforeseen condition arises, or there is some minor defect on the engine or slack in the train, which is usually found as soon as it is humanly possible, and rectified when the train reaches a terminal. The engineer is severely reprimanded for

jostling the passengers. He knows it and tries to avoid it. But this is not a perfect world; therefore it has no perfect engineers.

In conclusion, I would say to Mr. Richards, that if passengers and train crews would reciprocate courtesies, the pleasure of traveling would be improved 100 per cent. I am sure we trainmen and conductors would like our positions better than we do. Until both trainmen and passengers co-operate to bring about order, cleanliness, safety and convenience to all concerned, present conditions may continue to exist. Mr. and Mrs. Passenger, if you will be considerate and thoughtful of each other's comfort while traveling, and will do your part in maintaining order, cleanliness and safety, I am sure we trainmen won't fail to follow those requirements and, in return, treat you as you wish to be treated and be more tolerant of those passengers who are too ignorant to consider anyone but themselves. How I wish some passengers could see themselves as the trainman sees them—demanding, intolerant, abusive, defiant and most discourteous. A trainman, too, can complain.

#### Temperature Never Pleases Everyone

Mr. Richards likewise complains about the heating of cars. We try to keep the cars comfortable if we can. This applies to the older type coaches; the air conditioned cars are kept at about 71 deg. F. Yet some passengers want more heat while others put on fur coats and overcoats to keep warm. At the same time other passengers are perspiring and demand it cooler. It is difficult to please all passengers at all times as far as temperature is concerned.

I do not know how many passengers read the *Railway Age*. But to those who do, I hope this communication will give some idea of what employees' and employers' problems are in giving the public clean, efficient, courteous and dependable service, while they are traveling over our railroads. Perhaps this discussion of our problems, between train crews and passengers, may bring about a better service to our passengers in the near future.

ONE CONSCIENTIOUS TRAINMAN.

## New Books

*The Railway Handbook, 1936-1937, compiled under the direction of the Editor of the Railway Gazette. 96 pages, 8½ in. by 5½ in. Bound in paper. Published by the Railway Publishing Company, Ltd., London, England. Price 2 shillings 6 pence.*

This is the third annual edition of this handbook which is designed "to provide the railway student with a collection of useful statistics and information." While the data are confined mainly to Great Britain and Ireland, some international comparisons are included—the table on the status of railway electrification, for example. A new feature of the present edition is the 10-page chronology of railway history.

*Development of Draft Gears for American Freight Cars. By Wm. E. Gray and C. W. Messersmith. Published by Purdue University, Lafayette, Ind. 150 pages, paper bound.*

This book is a review of the developments leading up to the modern freight service draft gear. It brings into one book comprehensive information regarding practically all early types of draft gears as well as more modern types, this information having been available heretofore only in widely scattered sources. No effort is made to furnish operating characteristics or performance data on the various draft gears described. As stated in the foreword, few devices have been the object of greater inventive effort than the friction draft gear and over 12,000 patents were issued up to 1927. An effort has been made to exclude draft gears which existed only in patent drawings and to include all draft gears actually constructed, but some have doubtless been omitted in cases where the builder, either through choice or neglect, failed to make a record. A new and hitherto unused system of classifying draft gears on the basis of type of gear action is suggested.



# NEWS

## Defends Canadian Regulatory Bill

Minister of Transport Howe speaks on proposal to control all agencies

Stepping outside of Parliament and addressing the Canadian Club at Ottawa last week, Hon. C. D. Howe, Minister of Transport, defended his bill to regulate all forms of transport against attacks leveled at it before the Senate committee. Independent shipping companies operating on the Great Lakes, truck operators, the provincial governments and the railways are opposing different sections of the bill for different reasons. Most of the complaints during the past 10 days coming from various parts of Canada were on the ground the Transport Board would be unfair, Mr. Howe said.

No reason existed for assuming the Board would be unfair, the Minister contended. For many years the Railway Board had jurisdiction over the rates and schedules of railways and he did not believe the Board had been unfair to either the railways or the public. Why should it be anticipated it would be unfair to other forms of transportation?

Canadian railway rates on commodities for export were the lowest in the world, Mr. Howe said, as a result of special statutes. To offset this, domestic rates for short hauls were relatively higher than the export rates. This, he explained, made the railways particularly vulnerable when the trucks came to compete with railways for the short haul business.

In 1926 to 1928, he continued, Canadians went over to England and bought canal boats. Most of these were bought on payment down of 10 per cent and brought back to Canada to enter the carrying business on the Lakes and Upper St. Lawrence. By 1929 the number of these boats in operation had doubled.

With four times the tonnage needed for the business between the Foot of the Lakes and Montreal, these boats started cutting in on the business formerly exclusively done by the railways, such as package freight, moving canned goods, cement and the like. Then began a rate war.

The Minister estimated that on fully two-thirds of the boats brought over from England, only the first payments were ever made. The builders were in England, the banks holding the collateral were in England and they saw no advantage in foreclosing. Speaking of the inroads these boats made on railway revenues and the

operations of regularly operated steamship lines, the Minister spoke of the reorganization of Canada Steamship Lines. An important factor had been "the serious competition of bankrupt tonnage."

The Minister told of one fight in which a steamship company determined to capture all the canned goods business from certain plants. The carrier agreed to move the goods at eight cents below whatever the railway rate might be. After the contract had been executed the railways fixed an eight-cent rate so the boats had to carry the goods for nothing.

The Dominion joint legislative committee of the railway transportation brotherhoods submitted a brief voicing "hearty approval of what we understand to be the chief principle of the bill, namely to place the several forms of transport therein under the authority of a transport commission."

Expressing hope the bill would be brought into effect as soon as possible, the railwaymen said government control of various forms of transport was desirable and necessary.

### Type-AB Brake Installations

Under date of January 30, 1937, the secretary of the A. A. R. Mechanical Division issued to all car owners the usual fourth quarterly statement showing the number of freight cars on which brake

## To Seek 20 Cents an Hour Wage Rise

Sixteen unions in meeting at Chicago frame demands for general increase

The 16 non-operating railway brotherhoods, at a meeting at Chicago on February 23, voted to present to railroad managements a demand for a general increase of 20 cents in the hourly wages of workers, the amount being equal to an average increase of 20 per cent. At the same time a five-point program was adopted providing for:

1. A general increase in wages of 20 cents per hour applied to hourly, daily, weekly, monthly, or piece rate, so as to produce the same rate of increase for all employees;

2. A guarantee of full-time employment for all regularly assigned forces;

3. A guarantee of two-thirds of full time for stand-by forces;

4. A recommendation that wage procedure be handled in joint national conference, the executives of the participating organizations to constitute the conference committee representing labor with authority to handle the matter to a conclusion, subject to ratification in accordance with

### Railroad and Private Cars Equipped with Type-AB Air Brakes—Report for Quarter Ending December 31, 1936

Number of car owners .....	401
Number of interchange freight cars owned as of Dec. 31, 1936.....	2,200,303
Number of new interchange freight cars acquired during the quarter.....	19,472
Number of interchange freight cars converted during the quarter.....	3,676
Number of cars equipped with AB brakes as of Sept. 30, 1936.....	86,762
Number of cars equipped with AB brakes as of Dec. 31, 1936.....	109,796
Number of units retired, destroyed or otherwise disposed of during the quarter.....	37,175
Percentage of interchange freight cars equipped with AB brakes as of Dec. 31, 1936....	4.99

### Comparative Quarterly Statement of Railroad and Private Cars Equipped with Type-AB Air Brakes

	March 31, 1935	June 30, 1935	Sept. 30, 1935	Dec. 31, 1935	March 31, 1936	June 30, 1936	Sept. 30, 1936	Dec. 31, 1936
Total car owners	351	394	422	420	416	416	411	401
Int'g. frt. cars owned .....	2,337,716	2,338,480	2,330,021	2,283,681	2,242,691	2,230,506	2,219,775	2,200,303
Cars with AB brakes .....	27,571	31,546	35,920	46,842	53,499	66,361	86,763	109,796
Per cent with AB brakes ..	1.18	1.35	1.54	2.05	2.39	2.98	3.91	4.99

equipment has been converted to comply with the specifications for freight-car air brakes, adopted in 1933. One of the tables indicates that 109,796 railroad and private cars were equipped with Type-AB brakes as of December 31, 1936, this being 4.99 per cent of all interchange freight cars. The other table shows how this percentage has increased each quarter since March 31, 1935, when it was 1.18 per cent.

the laws of the respective organizations; and

5. A provision that notices be served immediately following the approval of the program by the general chairmen and on a specific date to be agreed upon.

This move by the non-operating brotherhoods follows that taken by the Big Five operating unions, which recently voted to ask for a 20 per cent increase in wages.



### C. G. W. to Move General Offices

The Chicago Great Western, on May 1, will move its general offices at Chicago to 309 West Jackson Boulevard.

### Latimer Goes to Social Security Board

President Roosevelt has sent to the Senate the name of Murray W. Latimer, chairman of the Railroad Retirement Board, for confirmation as a member of the Social Security Board in the place of John G. Winant, who has resigned.

### Independent Offices Bill Passed by Both Houses

The Independent Offices appropriation bill for 1938 has been passed by the House and Senate and is in conference. The bill contains appropriations for the Interstate Commerce Commission, and the Railroad Retirement Board. An early agreement between the conferees is expected.

### House and Senate Pass Pension Tax Law Extension

The House and Senate have passed H. J. Res. 212 extending to June 30, 1938, the provisions of the law levying an excise tax on the railroads and an income tax upon their employees for the purpose of paying the retirement annuities provided for in the railroad retirement act.

### Nevada Train Limit Bill Unconstitutional

Nevada's 70-car train limit bill was held unconstitutional on February 23 by three federal judges, meeting at Carson City, who upheld a ruling to that effect made by the master in chancery. The court issued an injunction against enforcement of the act.

### P. & S. Division Meeting at Atlantic City June 21-23

The Purchases and Stores Division, Association of American Railroads, has selected June 21, 22 and 23 as the dates for its three-day annual meeting to be held at Atlantic City, N.J. Thus the sessions will coincide with the annual meeting of the Mechanical Division, A.A.R., and the exhibit of the Railway Supply Manufacturers Association.

### Northern Pacific to Add New Train

The Northern Pacific, about the middle of April, will add an additional daily train between the Twin Cities and Glendive, Mont., and at the same time will speed up the schedule of its Alaskan. The new train, No. 7, will leave St. Paul, Minn., at 9:30 p. m., and Minneapolis at 10:15 p. m., and will maintain approximately the present schedule of the Alaskan. Eastbound, the train will leave Glendive at 7:30 a. m. and will arrive at Minneapolis

at 7:10 a. m. and St. Paul at 7:45 a. m. The Alaskan will leave St. Paul at 10:40 p. m. and Minneapolis at 11:05 p. m., 1 hr. 10 min. later than at present, and will arrive in Seattle at 6:00 a. m. the third day as at present. Eastbound, the Alaskan, which now lies over at Glendive eight hours to provide Western North Dakota cities with day passenger service, will become a through train, arriving at Minneapolis at 8:45 p. m. and St. Paul at 9:20 p. m., instead of the following morning.

### Coal Schedule Suspended

The Interstate Commerce Commission has suspended from February 20, until September 20, schedules proposing to cancel joint through rates and routing on bituminous coal in carloads, from mines on the Louisville & Nashville in Kentucky, Tennessee and Virginia to certain destinations on the New York, Chicago & St. Louis in Indiana, which would result in higher combination rates. The matter has been assigned for hearing March 16.

### More Escalators for Pennsylvania Station, New York

The Pennsylvania has recently contracted for the installation of two additional escalators in Pennsylvania station, New York. One will lead from the train platform to the exit concourse and the other will extend from the exit concourse to the main concourse. When these are installed there will be ten escalators in Pennsylvania station. James Stewart & Company are the general contractors, while the Otis Elevator Company will install the new escalators.

### Arch-Bar Truck Replacements

In a letter to all freight car owners, dated February 6, pertaining to transportation hazards due to arch-bar truck failures the secretary of the A. A. R. Mechanical Division included a statement showing the extent of compliance with Interchange

1936, 487,203 cars, or 22.2 per cent of railroad and private freight cars, were equipped with arch-bar trucks. The total number of car owners involved is 385 and the total interchange freight equipment owned or controlled, 2,198,365 cars. The report showed that the total number of interchange freight cars equipped with arch-bar trucks expected to be in service as of June 30, 1937, is 387,643.

One of the accompanying tables shows how the percentage of cars with arch-bar trucks has decreased each year from 44.2 per cent in 1929 to 22.2 per cent in 1936. The other table shows the number and percentage of railroad and private cars in interchange service equipped with cast-steel side frames, as compared to arch-bar trucks, as of December 31, 1936.

### Sir Edward Beatty Opposes C. N. R. Debt Revision

"The whole theory of recapitalization of the Canadian National is obviously dominated by a misconception," Sir Edward Beatty, president of the Canadian Pacific, told a meeting of the Dalhousie University Institute of Public Affairs in Halifax last week.

"The Canadian National is not a private corporation," he said. "While it has this legal form, it is, for all practical purposes, a department of the Dominion government. It can never divest itself of one dollar of obligation by any process of writing off or of bankruptcy."

"Every dollar which the government has ever advanced to the Canadian National, and every dollar which the Canadian National owes the government and fails to pay, either for principal or interest, represents a dollar which the Government of Canada borrows from private capitalists and will pay back."

"The government of Canada is involved, as a result of its railway adventures, to an amount in excess of \$3,000,000,000. The annual burden on the taxpayers of this country as a result of these adventures is

Recapitulation of Number and Percentage of Railroad and Private Cars in Interchange Service Equipped with Cast-Steel Side Frames as Compared to Arch-Bar Trucks, as of December 31, 1936

Per cent of cars equipped with side frames	Number of RRs. or p. c. l.	Total cars owned	Cars equipped with side frames		Cars equipped with arch bars		Decrease in AB truck ownership between June 30, 1936, and Dec. 31, 1936	Number of cars in AB trucks expected to be in service as of June 30, 1937
			Number of cars	Per cent	Number of cars	Per cent		
100 .....	65	98,085	98,085	100.0	0	0.0	553	0
75 to 100 .....	122	1,344,913	1,207,589	89.8	137,324	10.2	41,405	100,867
50 to 75 .....	79	455,315	302,811	66.5	152,504	33.5	41,476	108,098
0.1 to 50 .....	87	294,993	102,677	34.8	192,316	65.2	18,465	173,929
0.0 .....	32	5,059	0	0.0	5,059	100.0	343	4,749
Totals .....	385	2,198,365	1,711,162	77.8	487,203	22.2	102,242	387,643

Rule 3, Sec. (t), Par. (4), which provides that arch-bar trucks will not be accepted in interchange after January 1, 1938. This statement indicates that on December 31,

the interest on at least this amount of money, less any net operating profit which the system might produce."

It had been suggested, Sir Edward con-

Comparative Yearly Statement of Railroad and Private Freight Cars Equipped with Arch-Bar Trucks

	Dec. 31, 1929	Dec. 31, 1930	Dec. 31, 1931	Dec. 31, 1932	Dec. 31, 1933	June 30, 1934	Dec. 31, 1934	June 30, 1935	Dec. 31, 1935	June 30, 1936	Dec. 31, 1936
Total number of car owners.....	456	429	425	426	415	415	413	415	401	392	385
Total number of cars.....	2,823,613	2,835,881	2,757,049	2,677,441	2,545,625	2,485,241	2,410,723	2,352,958	2,281,214	2,226,886	2,198,365
Cars with arch-bar trucks.....	1,248,530	1,156,058	1,065,674	1,000,654	902,357	848,354	782,464	734,799	664,676	589,445	487,203
Percentage with arch-bar trucks..	44.2	40.8	38.7	37.4	35.4	34.1	32.5	31.2	29.1	26.5	22.2

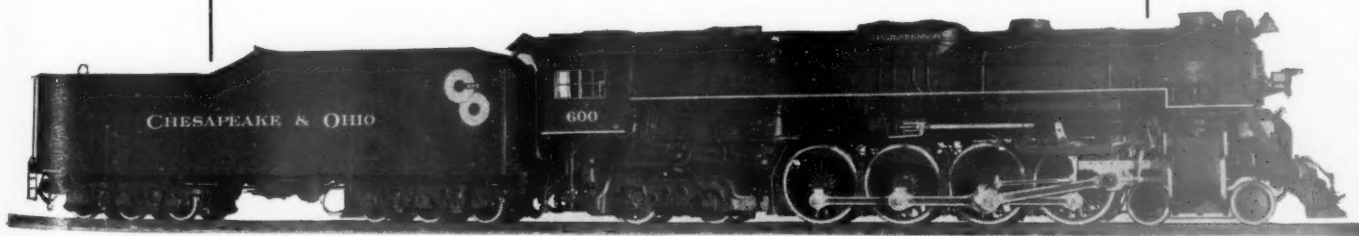
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# F O R E S I G H T !

Foresight in railroad operation correctly gauges the traffic volume and needs and provides equipment, at the lowest economic cost, to meet these requirements.

The present trend is for higher speeds with heavier train loads. Modern power is needed to provide the necessary horsepower capacity to haul such trains at economical costs.

Fortunately, the modern locomotive, of improved design, is capable of delivering 25% to 40% increase in horsepower capacity without increase in driving wheel loads. Expensive changes in track and bridges are not necessary for its operation.



LIMA LOCOMOTIVE WORKS, **LIMA LOCOMOTIVE WORKS INCORPORATED**, LIMA, OHIO

tinued, that the accounts of the system should be kept on such a basis as to reduce the deficit of 1935 from the \$115,281,689 recorded on the company's books and which included interest charges, to \$47,500,000 to cover "the so-called cash deficit." Such a plan overlooked the fact that the government was eventually responsible for the complete deficit, he claimed.

### Equipment on Order

A substantial increase in the number of new freight cars and locomotives on order is shown by reports from the Class I railroads. J. J. Pelley, president of the Association of American Railroads has announced. The number of new freight cars on order on February 1, this year, totaled 36,036. On February 1, 1936, there were 50,636 on order. Of the new freight cars, coal cars totaled 16,716; box cars, 13,730; refrigerator cars, 3,128; flat cars, 762; stock cars, 700; and miscellaneous other cars, 1,000.

Class I roads also had 362 new steam locomotives on order on February 1, a larger number than on any corresponding date since 1930 when there were 441. New electric and Diesel locomotives on order totaled ten.

New freight cars placed in service in January, this year, numbered 3,172, the greatest number to be installed in any January since 1930, when there were 8,659. In January, last year, 1,158 were put in service, while two years ago there were only 216. New steam locomotives installed in January, this year, totaled 12 compared with one in the same month last year and five in the same month two years ago. New electric and Diesel locomotives put in service in the first month this year numbered seven, compared with one in January, 1936, and ten in January, 1935. New freight cars and locomotives leased or otherwise acquired are not included in the above figures.

### Illinois Manufacturers Oppose Railroad Labor Bills

The Illinois Manufacturers' Association has issued the following statement opposing the six-hour day and the full crew bill:

"The Illinois Manufacturers' Association, as an organization of shippers, is vitally concerned and strongly opposed to the attempt to increase railroad transportation costs by legislative bills now pending in Congress. It is especially opposed to the unreasonable, unfair and economically unsound six-hour day with no reduction in pay for railroad employees. It also wishes to go on record in opposition to such measures as the full crew bill and train limitation bills as destructive of the efficiency in rail operation which has enabled the rail carriers to survive during the greatest depression in history.

"The Illinois Manufacturers' Association objects to the increased cost of transportation which will inevitably result from the unfair labor legislative proposals now pending in Congress because—

"It will add to the expense of factory operation.  
"It will be especially destructive to the welfare of Illinois and other middle western states which

do not have the advantage of coast-wise transportation through the Panama Canal.

"It will increase the cost of living.  
"It will interfere with sales of manufactured products, slow up industry and reduce factory employment.

"It will place railroad employees in a preferential class at the expense of employees in every other line. From official reports of the Interstate Commerce Commission it appears that Class I railroads paid \$1,554,245,709 to an average of 994,371 employees during 1935. These employees also received additional wages of \$89,632,801 charged to improvement of property. Railway employees received an average of \$1,632 in wages during the year. These railroads showed a deficit during 1935 of \$118,743,149, leaving nothing for new facilities or to make up previous deficiencies or to help create reserves against bad years in the future.

"It will result in government ownership and operation of railroads, inefficient and costly to the public, and utilized as a political machine for the benefit of whatever party is in power.

"The sponsors of these bills, apparently realizing that government ownership will never succeed as a direct issue, are now supporting measures which, through breaking down private operation, will make government ownership and operation inevitable and thus achieve their purpose. Sponsors of these measures, realizing that it is impossible to secure government ownership through the front door, are seeking methods of admitting it quietly through the back door and bringing it up the back stairs. Their promoters do not consider the effect such measures would have upon the vital question of taxation. This question of taxation affects not only individual and corporation taxpayers but the Federal Government, states, counties, cities and school districts. During the last 10 years, Class I railroads have paid to federal, state, county and local governments, a total of \$3,221,997,920 in taxes or an average of \$320,000,000 a year."

### Club Meetings

The Washington, D. C., Transportation Club held its thirty-first annual banquet on February 18. Harlee Branch, second assistant postmaster general, was the speaker of the evening and described the part that the Postoffice Department played in transportation.

The New Haven Railroad Club, composed of supervisory forces on that system, held its February meeting on February 16 at the Hotel Taft in New Haven, Conn. The program for this meeting, which was attended by more than 400 members and guests, included a demonstration of electrical developments by Dr. Phillips Thomas of the Westinghouse Electric & Manufacturing Company and a showing of motion pictures of last season's Yale-Princeton football game.

Continuing its study group lectures, the Metropolitan Traffic Association of New York at its meeting on February 25 held a discussion on diversions, reconsignments and demurrage, led by James A. Green of the American Potash & Chemical Company. At the March 11 meeting of the group D. J. McCabe of the Louisville & Nashville will lead a discussion on collection and delivery service.

Gustavus W. Dyer, professor of economics at Vanderbilt University, Nashville, Tenn., spoke on "The Relation of Governmental Regulation and Direction to Transportation" at the annual banquet of the Traffic Club of Chicago held at the Palmer House in that city on February 25.

The New York division of the Railroad Enthusiasts, Inc., has scheduled for Saturday, March 13, an inspection trip of the Newark, N. J., station and facilities of the Pennsylvania. The group will view the track relocation and new terminal arrangements for the Hudson & Manhattan and other phases of this extensive development.

The Canadian Railway Club will hold its next meeting on March 8 at the Windsor Hotel, Montreal. L. W. Wallace, Director, Equipment Research division, Association of American Railroads, will be the speaker.

The thirtieth annual dinner of the Traffic Club of New York was held at the Hotel Commodore in that city on February 20. James A. Emery, general counsel, National Association of Manufacturers, was the speaker.

The Car Foremen's Association of Chicago will hold its next meeting on March 8 at the Hotel LaSalle in that city. Members will discuss proposed changes in the A.A.R. rules for 1938.

### Opposition to Canada Transport Bill

When Senator Arthur Meighen, Conservative leader in the Canadian Parliament, said the other day in the Senate Committee on Railways, Telegraphs and Harbors which is considering at Ottawa the bill of Hon. C. D. Howe, Minister of Transport, to extend the railway board's jurisdiction to inland water rates, to air rates and to interprovincial highway traffic remarked, "Bring on those who are in favor of this bill, if any" he said considerable. About the only friends of the legislation who have said so up to date have been two steamship companies operating on the upper lakes.

Those who during the past two weeks have appeared before the committee and argued against the measure have included independent steamship operators, eastern commercial organizations such as the Montreal Board of Trade, the Winnipeg Grain Exchange which fears the fixation of minimum rates which would adversely affect grain prices and practically all the provincial governments which oppose the effort of the Dominion to control highway traffic, even though Senator Raoul Dandurand, government leader in the Senate, announced that the Minister (Mr. Howe) would not attempt to enforce the highway provisions of the bill without first consulting and getting the consent of the provinces. Next week the two railway companies will present their views to the committee.

## Construction

NEW YORK CENTRAL.—The P. T. Cox Contracting Company, New York, submitted the lowest bid for the general contract on the West Side Improvements from 135th to 146th streets, New York City.



## "We have a high regard for passenger comfort . . . so we use the Booster!"

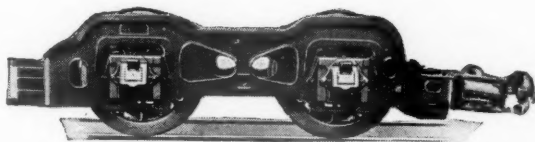
"As you know we have furnished De Luxe equipment and are advertising our train very extensively. If we use poor judgment in jerking those trains from a state of rest, we could hardly expect to hold the old customers and attract new ones. If you need the Booster for only three minutes, it is worth it from this viewpoint."

— SUPERINTENDENT OF MOTIVE POWER



Booster-Powered Locomotives start their train smoothly from every stop and accelerate quickly to road speeds.

And smooth starts mean passenger comfort in coaches, pullmans and the Diner—the best inducement you can provide for increased passenger travel.



# FRANKLIN RAILWAY SUPPLY CO., INC.

NEW YORK  
CHICAGO  
MONTREAL

## Equipment and Supplies

### Northern Pacific Program in Full Swing

The Northern Pacific's 1937 car repair program, to cost \$3,668,500, is now providing the largest amount of employment in the company's shops in 14 years. Under the program 300 freight cars and 100 passenger cars will be remodeled, and 29 passenger cars will be air-conditioned at the St. Paul, Minn., shops, at a cost of \$698,500; 4,100 freight cars will be reconditioned at the South Tacoma, Wash., shops at a cost of \$1,272,000; 2,800 freight cars will be reconditioned at the Brainerd, Minn., shops at a cost of \$910,000; and 2,400 freight cars will be reconditioned at the Laurel, Mont., shops at a cost of \$788,000.

In addition to the work being done in company shops, this company will soon close bids for eight 4-8-4 type locomotives, 750 fifty-ton gondola cars, 250 seventy-ton gondola cars, 500 fifty-ton flat cars, and 500 fifty-ton box cars.

### LOCOMOTIVES

PICKANDS, MATHER & Co., have ordered one superheated switching locomotive of the 0-6-0 type, from the American Locomotive Company. This locomotive will have 21 in. by 26 in. cylinders, and a weight of 170,000 lb.

THE CANADIAN PACIFIC has ordered 20 locomotives of the F-1-a type from the Canadian Locomotive Company. This is in addition to an order for 30 placed with another company and reported in the *Railway Age* of February 13.

THE CHICAGO & NORTH WESTERN has ordered the eight 4-6-4 type passenger locomotives which the district court at Chicago authorized it to buy from the American Locomotive Company, as was reported in the *Railway Age* of February 20. These locomotives are designed to haul 14 to 16 cars of standard weight at 120 m.p.h. Two of them will be used on the

"400" between Chicago and the Twin Cities, and six will be used on through trains between Chicago and Omaha. The locomotives will have a tractive effort of 55,000 lb., the weight of the locomotive being 400,000 lb. and the tender 360,000 lb. Driving wheels will measure 84 in. in diameter, while the overall length of the locomotives will be 56 ft., and that of the tenders 46 ft. The grate area will be 91 sq. ft., the diameter of the boiler 94 in., steam pressure 300 lb., and the cylinders will measure 25 in. by 29 in. The tender will have a capacity of 25 tons of coal and 22,000 gal. of water.

### FREIGHT CARS

THE GRAND TRUNK WESTERN has ordered 100 gondola cars of 70 tons' capacity, from the Magor Car Corporation. Inquiry for this equipment was reported in the *Railway Age* of January 30.

THE MICHIGAN LIMESTONE & CHEMICAL COMPANY, reported in the *Railway Age* of January 9 as inquiring for 30 air dump cars of 30 cu. yd. capacity, has divided this order equally between The Austin-Western Road Machinery Company and the Differential Steel Car Company.

### PASSENGER CARS

THE NEW YORK, NEW HAVEN & HARTFORD, has placed orders for 50 passenger coaches and 5 cafeteria cars, with the Pullman-Standard Car Manufacturing Company, the court having granted the road's petition for authority to buy this equipment, (see item in *Railway Age* of January 23). These coaches will be duplicates of the 50 purchased in 1934 and the 50 additional in 1936. The 5 cafeteria cars will be duplicates in structure and appearance of the passenger cars, but with different interiors. They will have a self-service counter and bar and will be provided with chairs and tables for serving food and drink.

### IRON AND STEEL

NEW YORK CENTRAL.—Bids have been received for about 450 tons of steel for use on the West Side Improvements, from 177th to 180th streets, New York City.

\* \* \* \*

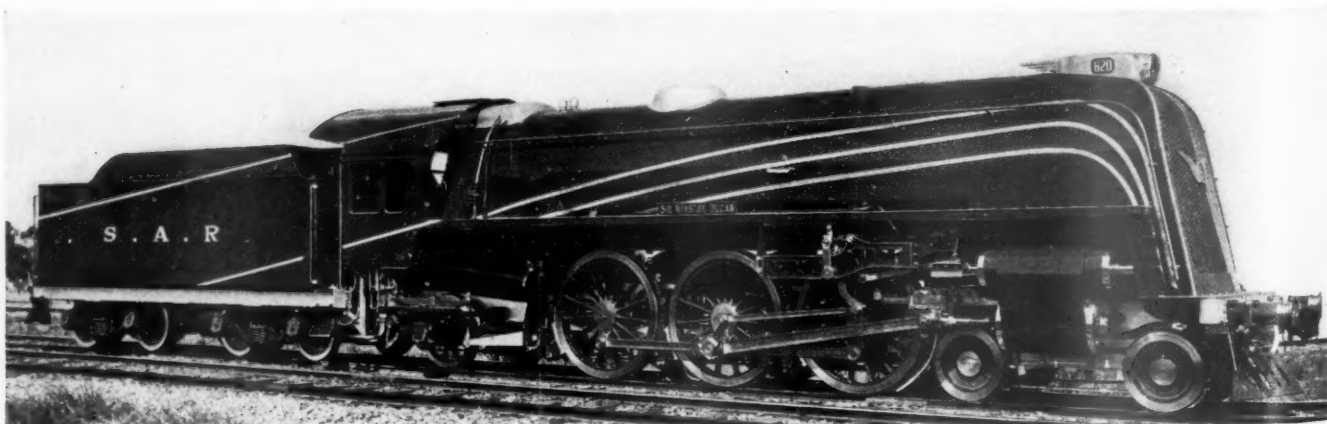
## Supply Trade

The Bantam Ball Bearing Company, South Bend, Ind., has changed its name to the Bantam Bearings Corporation to describe more clearly its products which include, in addition to ball bearings, taper roller and straight roller bearings. The Bantam Bearings Corporation is now a subsidiary of the Torrington Company, Torrington, Conn.

C. Wesley Pomeroy, supervisor of foreign licenses, of the Westinghouse Electric & Manufacturing Company, has been elected secretary, to fill the vacancy caused by the death of Warren H. Jones. Albert Olsen, who has been with the company since 1918, and has been associated with the secretary's office since 1924, was elected assistant secretary, both with their headquarters at New York.

L. O. Fryer, service manager at the San Francisco, Cal., office of the Graybar Electric Company, has been appointed sales manager, reporting to A. H. Nicoll, and J. A. Scalapino, succeeds Mr. Fryer as service manager; A. R. Fryklund, assistant sales manager at San Francisco, is now manager at the Sacramento branch; H. F. Siesbittel, is now sales manager at the Fresno branch; S. B. Cooper has been appointed sales manager at the Phoenix, Ariz., branch; W. B. Cooke has been appointed manager, J. J. Portley, sales manager, and J. L. Schoch, service supervisor, at the Albany, N. Y., branch.

H. F. Henriques and J. J. Lincoln, Jr., have been appointed assistant general sales managers of the Air Reduction Sales Company, with headquarters at Cleveland, Ohio, and Pittsburgh, Pa., respectively. Mr. Henriques has been a member of the sales department since March, 1929, and was manager of the Cleveland district from January, 1934, until he assumed his new position in January, 1937. Mr. Lincoln joined the company in 1924 and was appointed manager of the Pittsburgh district in May, 1934. J. M. Driscoll has been appointed acting manager at Cleveland. He has been in the service of Airco since March, 1929,



Streamlining on the South Australian Government Railways—A Pacific Type Locomotive Built at the Islington Shops of the Road in 1936

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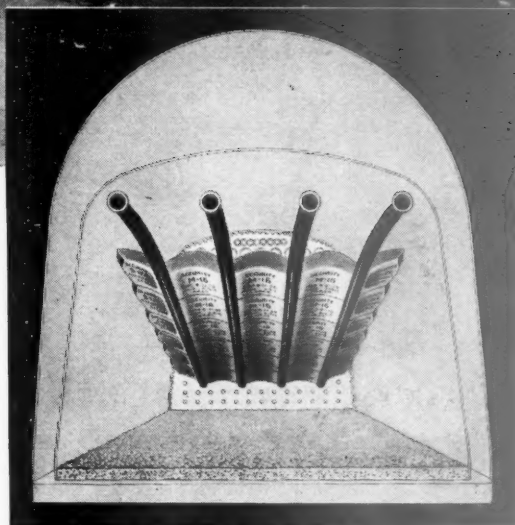
## NO. 4 OF A SERIES OF FAMOUS ARCHES OF THE WORLD



## ARCH OF TITUS, ROME

81 A. D.

The Arch of Titus erected A. D. 79-81 at the Eastern entrance of the Roman Forum to impress the imagination of the people with the grandeur that was Rome and to commemorate the capture of Jerusalem, is best known for its fine proportions and excellence of its details. The decorative panels on one side of the archway illustrate the Imperial Cortege, and on the other side a group bearing the spoils from the temple of Jerusalem. The frieze on the arch reproduces a number of other episodes of the triumph. A bronze quadriga was originally mounted on the top of the arch.

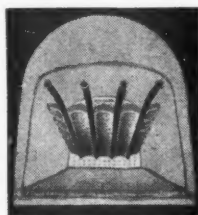


*There's More To SECURITY ARCHES Than Just Brick*

*The Security Sectional Arch for the locomotive firebox was designed and developed to further the economy and effectiveness of the steam locomotive. Its development paralleled locomotive development. It is today an essential factor in the successful operation of high speed, high capacity trains.*

**HARBISON-WALKER  
REFRACTORIES CO.**

*Refractory Specialists*



**AMERICAN ARCH CO.  
INCORPORATED**

*Locomotive Combustion  
Specialists* \* \* \*



when he joined the sales department. In 1933 he was promoted to assistant sales manager of the Cleveland district, which position he has held until his recent appointment. **S. D. Edsall** has been appointed acting district manager of the Pittsburgh district. He has been with the Airco sales department since February, 1923, and has been assistant sales manager of the Pittsburgh district since July, 1925. **J. F. Pryor**, formerly assistant to the general sales manager, has been appointed vice-president of the Magnolia Airco Gas Products Company, a Texas corporation handling all of Air Reduction's activities within that state. Mr. Pryor will have his headquarters at Houston, Texas.

**Cleon M. Hannaford**, who has been appointed sales engineer, western territory, of the **Wine Railway Appliance Company**, as noted in the *Railway Age* of January 9, was born at Marlboro, N. H., on March 6, 1891. In 1913 he became a blue-print operator in the employ of the



**Cleon M. Hannaford**

Boston & Albany, later serving as tracer and then draftsman in the mechanical department. On January 1, 1917, he became a draftsman in the mechanical department of the Chesapeake & Ohio, at Richmond, Va., resigning in 1922 to enter the railway supply business as president of the Car Devices Company, Inc., at Richmond. Mr. Hannaford is now sales engineer, western territory, of the Wine Railway Appliance Company and of the **Unitcast Company**, with headquarters at Toledo, Ohio.

### Lima Locomotive Works Annual Report for 1936

The Lima Locomotive Works reported for the year ended December 31, 1936, a net loss of \$251,104, after all charges including depreciation, as compared with a 1935 net loss of \$538,708. The former, however, included a depreciation charge of \$133,057 whereas only \$55,018 was thus written off during the previous year.

The report points out that although sales billed during 1936 were approximately 75 per cent greater than in 1935 they nevertheless represented "but a small percentage of plant capacity." Locomotives shipped totaled 21 as compared with nine in 1935, while 1936 sales of the shovel and crane

division were more than double those of the previous year.

In commenting on the prospects for 1937, Samuel G. Allen, chairman of the board, observes that "The need of the railroads of the country for modern locomotives of greater capacity and capable of more economical operation, as pointed out in the previous year's report, has been accentuated through increased carloadings in 1936 and has resulted in the placing of substantial orders for motive power. Orders were received during the year for 104 locomotives, compared with nine in 1935. Of these, 83 were ordered in the last four months and are scheduled for completion during the first half of 1937. Since the close of the year orders have been received for 15 additional locomotives which, with unfilled orders at the beginning of the year, make an aggregate of \$8,366,994 for 1937 production."

The balance sheet as of the close of last year lists total current assets of \$5,817,446 and current liabilities of \$1,349,436. Included in the current assets are \$879,456 in cash and \$539,411 in United States government and other marketable securities, having a market value at the close of the year of \$544,319.

During 1936 the company sold several thousand shares of its capital stock which had been acquired prior to February, 1933. Included in last year's transactions of this nature was the disposition of 12,200 shares which were sold for \$737,714 after having been acquired for \$249,503, the difference of \$488,212 being credited to capital surplus. Taking into account the profit on the sale of treasury stock and the loss from operations, and after providing for federal income and undistributed profits taxes of \$72,000, the total surplus of the company increased \$165,108 during the year. While the balance sheet lists 29,200 shares of the company's capital stock as remaining in the treasury at the close of the year, the text of the report reveals that these have been disposed of since the accounts were compiled.

### American Steel Foundries

The annual report of the American Steel Foundries for 1936 shows a net profit of \$2,953,426 as compared with \$116,692 in 1935. The balance sheet shows a ratio of quick assets to liabilities of 6.3 to 1, with a net working capital of \$11,439,734. There was expended and charged to property

account during the year for additions to plants and equipment, the sum of \$1,145,303, which included the purchase of the business and property of an industrial steel foundry at Newark, N. J. The net additions to property account for the year, after deducting discards and other credits, amounted to \$621,153.

The consolidated income account for the year ending December 31, 1936, with comparisons with 1935, is shown in the accompanying table.

### Annual Report of Baldwin Locomotive Works

The Baldwin Locomotive Works reported for the year ended December 31, 1936, a consolidated net loss of \$2,163,949 after all charges and adjustments for the equity of minority stockholders in the net profit of the Midvale Company and the loss of the Whitcomb Locomotive Company. This compares with a 1935 net loss of \$2,119,738.

The consolidated sales for 1936, exclusive of intercompany transactions, totaled \$20,877,736, compared with \$19,462,747 in 1935. Sales of locomotive products, amounting to \$3,737,185, accounted for but 18 per cent of the 1936 aggregate as compared with 33 per cent in 1935. However, unfilled orders for new locomotives and tenders on December 31 totaled \$20,197,227.

"The outlook for the locomotive business, and for the other lines of heavy equipment in which the company is engaged, is more favorable than for some years" says President George H. Houston in his remarks to the stockholders. "The locomotive inventory of Class I railroads has been reduced, largely by demolition, from about 64,000 locomotives at the beginning of 1926 to about 44,000 locomotives at the end of 1936. Carloadings have increased to a place where the reserve of stored, serviceable locomotives at January 1, 1937, is only about 2,275. Locomotives now on order by Class I railroads total about 420 in number. More than 90 per cent of the inventory of locomotives, measured in aggregate tractive power, is more than ten years old, and, therefore, is not strictly modern in design or wholly suitable for present traffic conditions. There is little question but what the demand indicated by these conditions will continue to develop during the next few years if conditions of normal prosperity prevail. Your

### American Steel Foundries

	1936	1935
Profit from operations, after deducting manufacturing, selling and administrative expenses, but before provision for depreciation.....	\$4,625,567	\$906,181
Deduct depreciation .....	1,107,458	703,583
Profit from operations.....	\$3,518,109	\$202,598
Add miscellaneous income:		
Interest, discount and exchange.....	126,438	16,744
Income from investments.....	41,711	34,988
Less—Miscellaneous net charges to income.....	.....	44,945
Total profit and income.....	\$3,686,258	\$209,385
Deduct:		
Provision for normal federal income taxes.....	590,772	87,223
Net earnings of subsidiary company appertaining to outstanding minority stockholdings .....	12,060	5,470
Net income before deducting surtax.....	\$3,083,426	.....
Provision for surtax on undistributed profits.....	130,000	.....
Net income carried to earned surplus.....	\$2,953,426	\$116,692

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**LOCOMOTIVE  
BOILER CAPACITY  
INCREASED  
8%-12%**

**when equipped  
with Elesco  
exhaust steam  
injector**

The ELESKO exhaust steam injector is—

**High in efficiency  
Low in first cost  
Low in maintenance cost**

20,000 locomotives throughout the world are equipped with this type of exhaust steam injector.

**THE  
SUPERHEATER  
COMPANY**

Representative of American Throttle Company, Inc.

60 East 42nd Street, New York  
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Canada:

The Superheater Company, Limited, Montreal

A-1128



**Superheaters  
American Throttles  
Feed Water Heaters  
Superheater Pyrometers  
Exhaust Steam Injectors  
Tangential Steam Dryers**

company now has on hand a larger backlog of locomotive orders than at any time since 1930. These orders include electric locomotives, Diesel locomotives and streamlined, high-speed steam locomotives, your company being prepared to build locomotives of each type."

President Houston continues to discuss in some detail the progress of court proceedings in connection with the company's plan for reorganization under Section 77-b of the Federal Bankruptcy Act and notes in this connection that "The early consummation of the plans is desirable and the efforts of your officers will continue to be directed to that end."

The 1936 operations of the Midvale Company (partially owned subsidiary of the Baldwin Locomotive Works) resulted in a net profit of \$1,266,168, according to the annual report of Harry L. Frevert, president. This compared with a net profit of \$496,085 in the previous year. The consolidated statement of profit and loss of the Baldwin Locomotive Works for the year ended December 31, 1936, follows:

The Baldwin Locomotive Works		
Consolidated Statement of Profit and Loss for the Year Ended December 31, 1936		
Sales .....	\$20,877,736	
Less:		
Cost of Sales, including Selling, Administrative and General Expenses .....	\$19,108,714	
Provision for Depreciation .....	1,846,216	
		20,954,930
Operating Loss .....		\$77,194
Other Income:		
Dividends .....	\$15,466	
Interest and Discount ..	452,245*	
Miscellaneous .....	134,716	
		602,427
Other Income less Operating Loss .....		\$525,233
Other Expenses:		
Interest .....	\$1,086,229*	
Miscellaneous (including profit participation for officers and other employees accrued by subsidiary companies, \$281,253.89) .....	615,918	
Provision for Federal and Pennsylvania Income Taxes of Subsidiary Companies (including Federal surtax on undistributed profits, \$14,700.00) ..	500,400	
		2,202,547
Loss for the Year .....		\$1,677,314
Equity of Minority Stockholders in:		
Net Profit of The Midvale Company .....	\$487,255	
Loss of The Whitcomb Locomotive Company ..	620	
		486,635
Loss Accrued to The Baldwin Locomotive Works Consolidated		\$2,163,949

\* Each of these amounts includes \$321,300 of interest accrued but not paid on First Mortgage Bonds held in the Sinking Fund.

### Chicago Railway Equipment Company

The annual report of the Chicago Railway Equipment Company for 1936 shows a profit of \$405,855, compared with a profit of \$9,011 in 1935. The profit from operations, after deducting manufacturing, selling and administrative expenses, amounted to \$507,489, while income from investments, rentals and the profit on the sale of securities amounted to \$78,822. From

this was deducted \$100,000 for depreciation of plant and equipment, leaving a net profit of \$405,855, and increasing the earned surplus to \$511,429. From this, \$430,982 was paid as dividends on preferred stock.

A. C. Moore, president, in his report to stockholders, said, "Regarding prospects for the year which we have now entered, there are so many factors involved, the determination of each lying in the range of speculative analysis, that it is perhaps unwise to venture too specific a prediction. A review of well regarded opinion indicates that, barring unusual labor disturbances, the recovery movement now in progress is expected to continue during the coming year. It is reasonable to assume that a large accumulated demand for heavy goods still exists, which, together with the probable further gains in consumer purchasing power, will permit an increase in the volume of industrial activity. This should directly improve the demand for our steel and iron products, and indirectly benefit our railroad business. The requirements of traffic will probably be substantially greater in 1937 than in 1936. Freight car surplus ranged in 1936 between a minimum of 112,369 and a maximum of 251,079 cars, the figure at the year's close being 133,476. The railroads, to be able to meet the demands satisfactorily, will have to make larger maintenance and capital expenditures than last year. Both the purchases and installations of new freight cars in 1937 should substantially exceed those in 1936."

### TRADE PUBLICATIONS

**THE SUPERHEATER.**—A series of discussions on the superheater as a factor in locomotive design is being issued by The Superheater Company, 60 East Forty-Second street, New York, in the form of a bulletin entitled "More Power to You." The bulletin consists of a series of Railway Age advertisements which briefly present the advantages of high superheated-steam temperatures.

**WELDING WIRE AND EQUIPMENT.**—An unusually attractive and well made 8½-in. by 11-in. loose-leaf binder is now being issued by the Hollup Corporation, Chicago, being designed for the insertion of descriptive bulletins and pages covering the products manufactured by this company. The first few pages of the binder list the points in the United States where Hollup stocks and services are available and describe the various Sureweld coated rods used for welding operations in general industry, as well as by the railroads. Several specific illustrations covering railway welding, such as in the construction of light-weight, streamlined cars, welded hopper cars and rail ends, are included, also much valuable information regarding all types of welding materials and methods. The latest specifications of the American Welding Society, as regards materials and physical tests, are quoted, also S. A. E. specifications for various types of steels. Data regarding Flexarc welding machines and various Hollup accessories, such as electrode holders, helmets, gloves, etc., are also shown in the binder.

## Financial

**ATCHISON, TOPEKA & SANTA FE.—Truck Line Acquisition.**—Grover L. Swink, assistant chief, section of finance, bureau of motor carriers of the Interstate Commerce Commission, in a proposed report, has recommended that the commission authorize the Santa Fe Transportation Company to acquire the property of the Oceanside Truck & Transfer Company, operating as a common carrier by truck in southern California.

**BESSEMER & LAKE ERIE.—Equipment Trust.**—Salomon Bros. & Hutzler, Dick & Merle-Smith and Stroud & Co. have offered \$6,700,000 of 2¼ per cent, 10-year equipment trust certificates of this company, priced to yield from 0.75 per cent to 2.5 per cent.

**CHESAPEAKE & OHIO.—Equipment Trust.**—F. S. Moseley & Co. and three associated firms have offered \$4,000,000 of 2 per cent, 10-year equipment trust certificates of this company, priced to yield from 0.75 per cent to 2.4 per cent.

**CHICAGO-GREAT WESTERN.—Notes.**—This company has applied to the Interstate Commerce Commission for authority to issue 5 per cent promissory notes aggregating \$477,795, to be dated April 1, 1937, and maturing semi-annually from October 1, 1937 to April 1, 1947.

**COPPER RANGE.—Reorganization.**—The Interstate Commerce Commission, Division 4, has announced the results of the balloting on its plan of reorganization for this company. In the case of holders of first mortgage bonds, 99.09 per cent of those voting accepted the plan, and 100 per cent of the holders of capital stock voted to accept the plan.

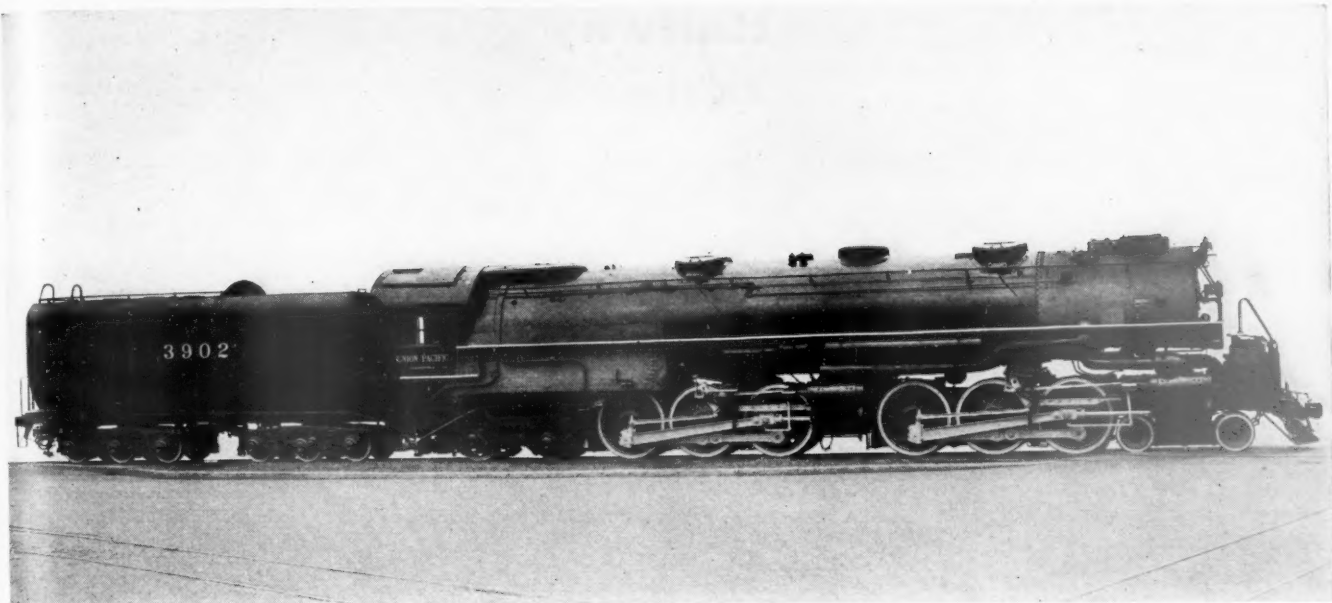
**KANSAS, OKLAHOMA & GULF.—Bonds.**—The Interstate Commerce Commission, Division 4, has authorized this company to issue \$422,000 of first mortgage 5 per cent gold bonds, series 1978, to be sold at not less than 102; and pending their sale, to pledge and repledge them as collateral security for short term notes. The annual cost of the proceeds to the company will be approximately 4.9 per cent.

**LOUISVILLE & NASHVILLE.—Equipment Trust Certificates.**—The Interstate Commerce Commission, Division 4, has authorized this company to assume liability for \$4,950,000 of 2¼ per cent serial equipment trust certificates, maturing in 15 equal annual installments of \$330,000 on March 1, from 1938 to 1952. The issue has been sold to Wood, Struthers & Co. at 98.53, making the interest cost to the company approximately 2.484 per cent.

**NEW YORK, NEW HAVEN & HARTFORD.—Abandonment.**—The trustees of this company have applied to the Interstate Commerce Commission for authority to abandon the following lines: From Middleboro Station, Mass. to Myricks Station, 5.8 miles; from Greenbush, Mass. to Kingston, 14.2 miles; and from Dighton, Mass.,

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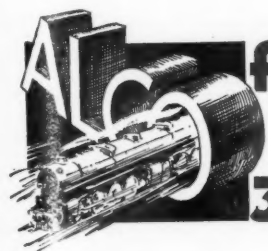
# The "CHALLENGER" Type

## BUILT FOR UNION PACIFIC

FIFTEEN DELIVERED IN THE FALL OF 1936.  
TWENTY-FIVE MORE NOW UNDER ORDER.

**NEW POWER—NEW PROFITS**

Weight on Drivers,	386,000 pounds	Diameter of Drivers,	69 inches
Weight of Engine,	566,000 pounds	Boiler Pressure,	255 pounds
Cylinders,	22 x 32 inches	Maximum Tractive Power,	97,400 pounds



**AMERICAN LOCOMOTIVE COMPANY**

**30 CHURCH STREET • NEW YORK • N.Y.**

to Somerset Junction, 2.6 miles. These lines are branch lines of the Old Colony Railroad.

**NASHVILLE, CHATTANOOGA & ST. LOUIS.—Equipment Trust.**—Salomon Bros. & Hutzler, Dick & Merle-Smith and Stroud & Co. have offered \$840,000 of 2¼ per cent, 15-year equipment trust certificates, series C, of this company, priced to yield from 0.9 per cent to 3 per cent.

**PITTSBURGH & WEST VIRGINIA.—Equipment Trust Certificates.**—This company has applied to the Interstate Commerce Commission for authority to assume liability for \$260,000 of 2¼ per cent equipment trust certificates, series 1937, maturing in 10 equal annual installments of \$26,000.

**READING.—Bonds.**—The Interstate Commerce Commission, Division 4, has authorized this company to procure the authentication and delivery of \$5,766,000 of general and refunding mortgage 3½ per cent bonds, series C, in reimbursement of a like amount of cash expended to retire underlying bonds. The bonds will mature March 1, 1962 and are to be held in the company's treasury until further order from the commission.

**TENNESSEE.—Bonds.**—The Interstate Commerce Commission, Division 4, has authorized this company to issue \$860,000 of first mortgage 15 year bonds, series A, to be delivered at par to the holders of the company's matured first mortgage 6 per cent 15-year bonds and general mortgage 6 per cent 15-year bonds. The bonds will bear interest at 5 per cent, payable semi-annually on February 2 and August 2, and will be redeemable as a whole or in part, at the option of the company, on any interest payment date at par and accrued interest, and will mature February 2, 1952.

**UNION PACIFIC.—Extension of Bus Operations.**—Joint Board No. 49, composed of Harry Holden of Idaho, in a proposed report, has recommended that the Interstate Commerce Commission authorize the Union Pacific Stages, Inc., to operate as a common carrier by motor vehicle between Coeur d'Alene, Idaho and Moscow over U. S. highway 95.

**WABASH.—Notes.**—The receivers of this company have applied to the Interstate Commerce Commission for authority to assume liability for \$400,000 of 3½ per cent serial notes of the Wabash-Hannibal Bridge Company, which operates a bridge across the Mississippi River near Hannibal, Mo.

### Average Prices of Stocks and Bonds

	Feb. 23	Last week	Last year
Average price of 20 representative railway stocks..	56.38	56.25	49.55
Average price of 20 representative railway bonds..	84.06	83.95	81.57

### Dividends Declared

Alabama & Vicksburg.—Capital, 3 per cent, semi-annually, payable April 1 to holders of record March 8.

Vicksburg, Shreveport & Pacific.—Preferred, 2½ per cent, semi-annually; Common, 2½ per cent, semi-annually, both payable April 1 to holders of record March 8.

## Railway Officers

### FINANCIAL, LEGAL AND ACCOUNTING

**F. L. Schepler**, who has been appointed general freight claim agent of the Baltimore & Ohio at Baltimore, Md., as noted in the *Railway Age* of February 20, was born at Baltimore on May 26, 1875. He entered railroad service with the Baltimore & Ohio as a stenographer in the car service department on May 21, 1899, being transferred to the superintendent's office on February 1, 1900, and to the police department of the road on October 25, 1902. He became chief clerk to the general superintendent of police on July 1, 1903, and supervisor of police on December 16, 1916. Mr. Schepler was appointed special agent to the auditor freight claim department on May 16, 1917, and special agent to the freight claim agent on July 1, 1918. On December 1, 1919, he was appointed assistant to freight claim agent and on March 16, 1920, he became



F. L. Schepler

assistant to the general freight claim agent, which position he held until his recent appointment.

**Harry Franklin Brahany**, who has been appointed auditor of the Chesapeake & Ohio at Richmond, Va., as noted in the *Railway Age* of February 13, was born on February 5, 1891, at Marshall, Ill., and attended the public schools of Tyler and Texarkana, Tex. He entered railroad service in 1909 as clerk in the master mechanic's office of the Texarkana & Fort Smith at Texarkana. After more than a year in that position Mr. Brahany held various clerical positions in the mechanical and accounting departments of the Wichita Falls & Northwestern at Wichita Falls, Tex., and in the accounting departments of the Texas & Pacific and the Missouri-Kansas-Texas of Texas at Dallas, Tex., the Louisiana & Arkansas at Texarkana and the Missouri-Kansas-Texas at St. Louis, Mo. From 1914 to June, 1916, he served successively as general bookkeeper and chief clerk of the dis-

bursement section of the accounting department of the Missouri-Kansas-Texas. In July, 1916, Mr. Brahany became chief clerk in the general auditor's office of the Pere Marquette at Detroit, Mich. In



Harry F. Brahany

December, 1917, he joined the railroad staff of the firm of Paterson, Teele and Dennis, certified public accountants of New York. He returned to the service of the Pere Marquette in October, 1918, as special accountant in the federal auditor's office and occupied this position until June, 1919, when he returned to the Missouri-Kansas-Texas as valuation accountant for the receiver at St. Louis. In March, 1920, he again returned to the Pere Marquette as auditor capital expenditures, becoming statistician in the operating department. From 1923 to March 31, 1933, he served as auditor of disbursements of the Pere Marquette and on April 1, 1933, became auditor of disbursements of the Chesapeake & Ohio, the position he held until his recent appointment as auditor of the company.

### OPERATING

**P. W. Neff**, trainmaster of the Wilkes-Barre division of the Pennsylvania, has been transferred in the same capacity to the Cincinnati division. **L. R. Doggett**, freight trainmaster of the Baltimore division, has been appointed trainmaster of the Wilkes-Barre division. **F. B. Kraus**, trainmaster of the St. Louis division, has been appointed freight trainmaster of the Baltimore division. **L. G. Jamison**, trainmaster of the Delmarva division, has been transferred in the same capacity to the Erie and Ashtabula division. **Frank Over**, assistant trainmaster of the Philadelphia division, has been appointed trainmaster of the Delmarva division. **W. J. Wiltse**, assistant trainmaster of the Philadelphia division at Lancaster, Pa., has been transferred in the same capacity to Enola, Pa. **H. L. Lodge**, yardmaster of the Maryland division, has been appointed assistant trainmaster of the Philadelphia division at Lancaster.

### TRAFFIC

**Harvey E. Dixon**, division passenger agent on the Wabash, with headquarters

Continued on next left-hand page



**Always  
the  
Same**

## Easy Cutting--True To Size

**A**SK any veteran railroad shop mechanic. All agree on the uniform qualities of HUNT-SPILLER *Air Furnace* GUN IRON Castings.

This consistent uniformity, which permits manufacture very close to finished sizes, means big savings to your road—savings in material purchases—savings in time and cost of machining and savings in maintenance costs.

It has also proven to be a vital factor in the dependability and availability of power in all classes of service.

**H S G I**

Reg. U. S. Trade Mark

Cylinder Bushings  
Cylinder Packing Rings  
Pistons or Piston Bull Rings  
Valve Bushings  
Valve Packing Rings  
Valve Bull Rings  
Crosshead Shoes  
Hub Liners  
Shoes and Wedger  
Floating Rod Bushings

**Parts Finished For  
Application**

Dunbar Sectional Type Packing  
Duplex Sectional Type Packing  
for Cylinders and Valves  
(Duplex Springs for Above  
Sectional Packing)  
Cylinder Snap Rings  
Valve Rings All Shapes

**HUNT-SPILLER MFG. CORPORATION**

V.W. Ellet Pres. & Gen. Mgr. / E.J. Fuller Vice-President

*Office & Works*

383 Dorchester Ave.

South Boston, Mass.

Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P.Q.

Export Agent for Latin America:

International Rwy. Supply Co., 30 Church Street, New York, N. Y.

**HUNT-SPILLER  
GUN IRON**

*Air Furnace*



at St. Louis, Mo., has been promoted to assistant general passenger agent with the same headquarters, to succeed **F. L. McNally**, who has been assigned to other duties.

**E. A. McCarthy**, general agent for the Western Pacific with headquarters at Portland, Ore., has been promoted to assistant traffic manager, with headquarters at Chicago, to succeed **John J. Grogan**, resigned. **J. F. McKenzie** has been appointed general agent at St. Louis, Mo., to succeed **Fred McMullin**, who has been transferred to Portland, to replace Mr. McCarthy.

**D. D. Jamieson**, whose appointment as coal freight agent of the Erie at New York, was noted in the *Railway Age* of February 13, was born in Paterson, N. J.,



D. D. Jamieson

on March 11, 1898, and attended grammar and high schools in that city. He entered the service of the Erie on March 20, 1916, as messenger in the tariff bureau, being transferred to the general freight department in October, 1916, and to the office of the vice-president in charge of traffic on January 1, 1918. From June 1, 1918, to April 30, 1926, Mr. Jamieson held various positions in the coal traffic department. On May 1, 1926, he resigned to accept a position as assistant to the traffic manager of W. J. Rainey, Inc., coal oper-

ators at New York. On March 3, 1930, he returned to the Erie as a commercial agent under the general eastern freight agent and was transferred back to the coal traffic department on May 1, 1930, on special assignment. Mr. Jamieson was appointed assistant coal freight agent on April 1, 1936, the position he held until his recent appointment as coal freight agent.

## ENGINEERING AND SIGNALING

**Charles L. Bates**, engineer maintenance of way of the Pacific Great Eastern with headquarters at Squamish, B. C., has been promoted to the newly-created position of chief engineer of this company.

## OBITUARY

**Thomas B. Turner**, assistant personnel director of the Louisville & Nashville, with headquarters at Louisville, Ky., died on February 14. He had been connected with the L. & N. for 50 years.

**Edric Augustus Blake**, who retired in 1923 as general superintendent of the Eastern general division of the Norfolk & Western, died at his home in Roanoke, Va., on January 4, at the age of 83 years.

**Edward W. Smith**, who retired on March 16, 1931, as assistant to the chief engineer of the Seaboard Air Line, died at Norfolk, Va., on February 13 following a short illness. He was 78 years old.

**Elmer H. Olson**, assistant engineer on the Atchison, Topeka & Santa Fe with headquarters at Chicago, died of pneumonia on February 19. Mr. Olson had been connected with the Santa Fe for more than 37 years.

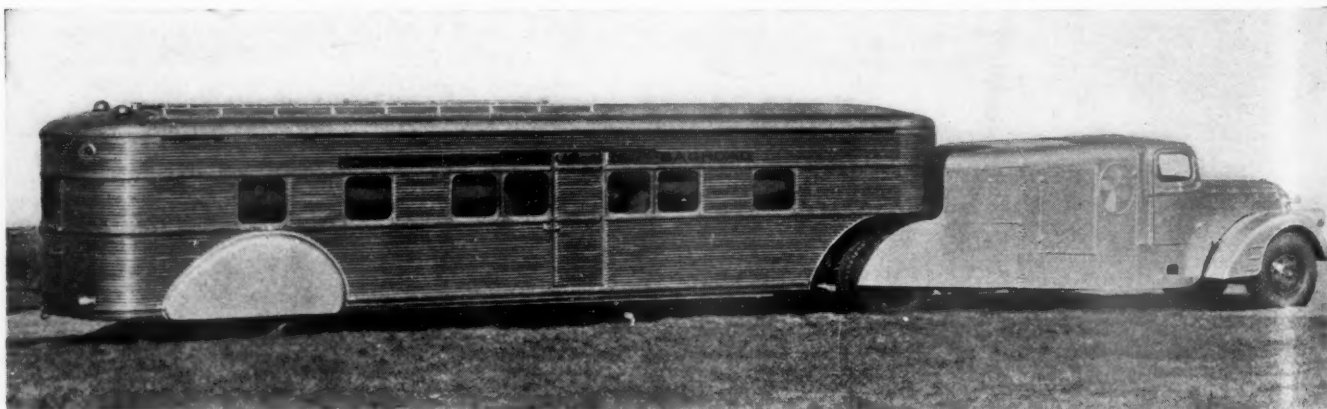
**A. F. Barclay**, who resigned as general manager of the New Orleans Public Belt on January 1, died at New Orleans, La., on January 31 at the age of 58 years. Mr. Barclay first became connected with the New Orleans Public Belt in 1906, serving as civil engineer and assistant engineer until 1912. After a period of service with the Texas & Pacific he returned to the New Orleans Public Belt

as chief engineer, which position he held until 1934, when he was promoted to general manager.

**E. O. Reeder**, who retired in 1917 as assistant chief engineer of the Western lines of the Chicago, Milwaukee, St. Paul & Pacific, died at Seattle, Wash., on February 21 in his eighty-sixth year. Mr. Reeder entered the service of the Milwaukee in 1875 as a crosstie and wood inspector, later being transferred to the engineering department, where he was engaged on surveys and on branch line construction in Wisconsin, Iowa and Minnesota. In 1901 he was appointed assistant chief engineer and in 1911 chief engineer of the Chicago, Milwaukee & Puget Sound (part of the Milwaukee). Following the consolidation of the C. M. & P. S. with the parent line in January, 1913, he was appointed assistant chief engineer in charge of the Western lines. Because of ill health he retired in 1917.

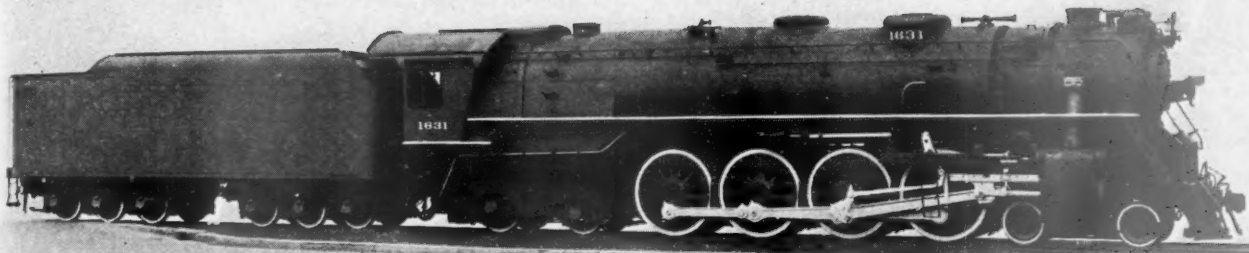
**Frederick E. Blaser**, assistant to vice-president in charge of operation and maintenance of the Baltimore & Ohio, with headquarters at Baltimore, Md., died on February 17. Mr. Blaser was born in Tomah, Wisconsin, on December 14, 1858. He was educated in the grammar schools of that city, and in 1871 entered railroad service with the Chicago, St. Paul, Minneapolis & Omaha as water boy. He served successively with that road as telegraph operator, station agent, brakeman, freight and passenger conductor, train dispatcher and trainmaster. In August, 1901, he entered the service of the Baltimore & Ohio as superintendent of the Ohio River division, with headquarters at Parkersburg, W. Va., being transferred to Wheeling, W. Va., in the same capacity in April, 1903. In February, 1904, he was again transferred as superintendent of the Cumberland division at Cumberland, Md., and in April, 1910, was advanced to general superintendent of the main line of the company. He was promoted to assistant general manager of the Eastern lines on November 1, 1917, and on March 1, 1920, was made assistant to vice-president, having charge of the bureau of wages and working conditions and the bureau of employment and discipline.

\* \* \* \*



This Light-Weight, Stainless-Steel, Sleeper Trailer-Bus of 14 Passenger Capacity, Air-Conditioned and Designed for Desert Travel, Has Been Delivered by the Edward G. Budd Manufacturing Company to the Nairn Transport Company, Ltd., for Use in the Syrian Desert Between Baghdad and Damascus—The Tractor, Powered by a 150-hp. Diesel Engine, Was Built by the Van Dorn Iron Works, Cleveland, Ohio

Table of Operating Revenues and Expenses appears on next left-hand page



## MODERN LOCOMOTIVES Need This Modern Brake—the No. 8-ET Equipment

THE No. 8-ET Equipment, applied to the most modern locomotives, is the satisfactory answer to the locomotive brake problem for steam and electrified railroad service . . . Its functional characteristics and operating advantages are completely disclosed in our Descriptive Catalogue 2052, a copy of which may be had for the asking. » » » » »



# WESTINGHOUSE AIR BRAKE CO.

GENERAL OFFICE AND WORKS . . . WILMERDING, PA.



# Operating Revenues and Operating Expenses of Class I Steam Railways

Compiled from 140 Monthly Reports of Revenues and Expenses Representing 144 Class I Steam Railways

FOR THE MONTH OF DECEMBER, 1936 AND 1935

Item	United States		Eastern District		Southern District		Western District	
	1936	1935	1936	1935	1936	1935	1936	1935
Average number of miles operated .....	236,188	237,289	58,389	58,813	44,816	44,956	132,983	133,520
Revenues:								
Freight .....	\$299,230,650	\$234,440,352	\$130,026,989	\$102,760,729	\$58,801,192	\$46,533,680	\$110,402,469	\$85,145,943
Passenger .....	39,262,179	34,373,612	21,645,666	19,632,767	5,796,628	4,818,548	11,819,885	9,922,297
Mail .....	10,457,791	9,619,708	3,931,909	3,637,817	1,762,655	1,627,765	4,763,227	4,354,126
Express .....	6,191,232	4,895,405	2,600,252	2,132,820	1,292,094	970,224	2,298,886	1,792,361
All other transportation...	8,390,621	6,678,115	3,903,709	3,420,075	925,694	791,631	3,561,218	2,466,409
Incidental .....	7,944,501	5,528,072	3,512,696	3,001,602	895,465	856,490	3,536,340	1,669,980
Joint facility—Cr. ....	1,029,154	833,890	306,535	259,258	186,581	151,823	536,038	422,809
Joint facility—Dr. ....	241,150	219,690	52,751	59,353	21,812	21,608	166,587	138,729
Railway operating revenues .....	372,264,978	296,149,464	165,875,005	134,785,715	69,638,497	55,728,553	136,751,476	105,635,196
Expenses:								
Maintenance of way and structures .....	33,918,479	29,935,372	13,587,249	11,757,432	6,227,124	6,422,047	14,104,106	11,755,893
Maintenance of equipment .....	69,327,003	62,291,600	33,065,244	27,213,020	12,512,753	14,667,038	23,749,006	20,411,542
Traffic .....	8,808,540	8,044,504	3,273,884	3,018,929	1,709,147	1,604,719	3,825,509	3,420,856
Transportation .....	128,974,612	110,841,941	59,341,980	51,440,113	21,091,582	18,424,822	48,541,050	40,977,006
Miscellaneous operations..	3,393,636	2,853,134	1,591,687	1,399,221	436,278	337,539	1,365,671	1,116,374
General .....	13,444,482	12,485,198	5,868,384	5,628,502	2,397,495	2,120,796	5,178,603	4,735,900
Transportation for investment—Cr. ....	442,452	549,027	368,985	117,235	81,194	66,231	* 7,727	365,561
Railway operating expenses .....	257,424,300	225,902,722	116,359,443	100,339,982	44,293,185	43,510,730	96,771,672	82,052,010
Net revenue from railway operations .....	114,840,678	70,246,742	49,515,562	34,445,733	25,345,312	12,217,823	39,979,804	23,583,186
Railway tax accruals .....	32,895,088	14,663,519	16,813,272	5,797,190	7,040,417	3,820,903	9,041,399	5,045,426
Railway operating income .....	81,945,590	55,583,223	32,702,290	28,648,543	18,304,895	8,396,920	30,938,405	18,537,760
Equipment rents—Dr. balance .....	7,829,894	6,511,987	3,345,920	3,305,337	309,672	17,486	4,174,302	3,189,164
Joint facility rent—Dr. balance .....	3,596,094	3,050,540	2,003,112	1,914,762	406,388	262,395	1,186,594	873,383
Net railway operating income .....	† 70,519,602	† 46,020,696	27,353,258	23,428,444	17,588,835	8,117,039	25,577,509	14,475,213
Ratio of expenses to revenues (per cent) .....	69.15	76.28	70.15	74.44	63.60	78.08	70.76	77.68
Depreciation included in operating expenses .....	16,133,014	15,866,869	6,868,593	6,866,547	3,197,454	3,155,106	6,066,967	5,845,216
Total maintenance before depreciation .....	87,112,468	76,360,103	39,783,900	32,103,905	15,542,423	17,933,979	31,786,145	26,322,219
Net railway operating income before depreciation ...	86,652,616	61,887,565	34,221,851	30,294,991	20,786,289	11,272,145	31,644,476	20,320,429

FOR TWELVE MONTHS ENDED WITH DECEMBER, 1936 AND 1935

Item	United States		Eastern District		Southern District		Western District	
	1936	1935	1936	1935	1936	1935	1936	1935
Average number of miles operated .....	236,761	237,920	58,566	58,944	44,901	45,185	133,294	133,791
Revenues:								
Freight .....	\$3,308,540,700	\$2,796,279,413	\$1,404,528,292	\$1,191,981,072	\$650,429,565	\$550,258,609	\$1,253,582,843	\$1,054,039,732
Passenger .....	412,490,805	357,888,435	232,486,718	207,821,363	55,327,779	46,436,254	124,676,308	103,630,818
Mail .....	95,574,818	92,035,637	36,620,640	35,372,300	16,819,176	16,270,444	42,135,002	40,392,893
Express .....	60,187,396	53,318,716	24,900,336	22,004,345	12,171,689	11,373,773	23,115,371	19,940,598
All other transportation...	86,851,051	75,570,139	44,648,406	40,072,860	9,037,737	7,738,265	33,164,908	27,759,014
Incidental .....	80,586,961	67,966,368	41,650,500	35,762,087	10,668,587	9,904,844	28,267,874	22,299,437
Joint facility—Cr. ....	11,355,649	9,697,006	3,450,756	2,988,123	2,392,164	2,126,329	5,512,729	4,582,554
Joint facility—Dr. ....	2,853,231	2,446,787	627,467	643,699	261,536	219,612	1,964,228	1,583,476
Railway operating revenues .....	4,052,734,149	3,450,308,927	1,787,658,181	1,535,358,451	756,585,161	643,888,906	1,508,490,807	1,271,061,570
Expenses:								
Maintenance of way and structures .....	454,842,407	393,813,352	176,041,469	151,043,003	80,961,985	75,083,238	197,838,953	167,687,111
Maintenance of equipment .....	782,999,333	681,975,817	356,958,291	300,399,566	144,072,366	133,225,145	281,968,676	248,351,106
Traffic .....	100,128,413	94,190,418	37,208,476	35,505,186	19,377,000	18,058,932	43,542,937	40,626,300
Transportation .....	1,405,511,985	1,252,889,580	640,557,277	574,532,268	230,340,784	208,522,737	534,613,924	469,834,575
Miscellaneous operations..	35,859,545	30,367,537	16,306,733	14,063,533	4,228,835	3,583,135	15,323,977	12,720,869
General .....	157,281,927	142,919,520	69,010,360	65,418,620	26,888,397	24,860,539	61,383,170	52,640,361
Transportation for investment—Cr. ....	5,165,753	3,787,392	1,020,999	769,906	846,130	430,041	3,298,624	2,587,445
Railway operating expenses .....	2,931,457,857	2,592,368,832	1,295,061,607	1,140,192,270	505,023,237	462,903,685	1,131,373,013	989,272,877
Net revenue from railway operations .....	1,121,276,292	857,940,095	492,596,574	395,166,181	251,561,924	180,985,221	377,117,794	281,788,693
Railway tax accruals .....	319,716,035	236,897,281	139,409,250	98,789,902	66,062,341	49,828,237	114,244,444	88,279,142
Railway operating income .....	801,560,257	621,042,814	353,187,324	296,376,279	185,499,583	131,156,984	262,873,350	193,509,551
Equipment rents—Dr. balance .....	94,551,861	86,493,359	42,433,725	40,914,858	3,442,991	3,486,316	48,675,145	42,092,185
Joint facility rent—Dr. balance .....	39,751,192	35,547,843	21,756,480	20,422,838	4,754,551	3,511,221	13,240,161	11,613,784
Net railway operating income .....	† 667,257,204	† 499,001,612	288,997,119	235,038,583	177,302,041	124,159,447	200,958,044	139,803,582
Ratio of expenses to revenues (per cent) .....	72.33	75.13	72.44	74.26	66.75	71.89	75.00	77.83
Depreciation included in operating expenses .....	193,514,078	194,686,222	84,263,984	85,151,027	38,242,376	38,210,044	71,007,718	71,325,151
Total maintenance before depreciation .....	1,044,327,662	881,102,947	448,735,776	366,291,542	186,791,975	170,098,339	408,799,911	344,713,066
Net railway operating income before depreciation ...	860,771,282	693,687,834	373,261,103	320,189,610	215,544,417	162,369,491	271,965,762	211,128,733

\* Deficit or other reverse items.

† Includes charges to Railway Tax Accruals in the total amount of \$13,070,098 itemized as follows: \$2,041,398 for taxes under the requirements of the Social Security Act of 1935, and \$11,028,700 under the requirements of an Act approved August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes (Public No. 400, 74th Congress).

‡ Includes credits to General Expenses in the amount of \$373,549 on account of reversal of charges previously made for liability under the Railroad Retirement Act of 1934.

§ Includes charges to Railway Tax Accruals in the total amount of \$65,551,709 itemized as follows: \$18,253,153 for taxes under the requirements of the Social Security Act of 1935, and \$47,298,556 under the requirements of an Act approved August 29, 1935, levying an excise tax upon carriers and an income tax upon their employees, and for other purposes (Public No. 400, 74th Congress).

¶ Includes credits to General Expenses in the amount of \$9,003,287 on account of reversal of charges previously made for liability under the Railroad Retirement Act of 1934.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.



# THIRTY-NINTH ANNUAL REPORT OF READING COMPANY

## FOR THE YEAR ENDED DECEMBER 31, 1936

PHILADELPHIA, PA., FEBRUARY 16, 1937.

To the Stockholders of Reading Company:

The Board of Directors submits herewith its 39th Annual Report.

### INCOME ACCOUNT

For Years Ended December 31, 1936 and 1935

RAILWAY OPERATING REVENUES:	1936	1935
Freight:		
Anthracite Coal:		
Prepared .....	\$15,181,106.19	\$14,046,190.24
Unprepared .....	651,178.09	504,948.16
Bituminous Coal .....	10,678,677.63	9,761,488.78
Merchandise .....	26,338,883.84	21,363,566.74
Passenger .....	3,893,133.02	3,077,347.19
Excess baggage .....	1,799.81	1,897.52
Parlor and chair car .....	5,127.57	5,148.81
Mail .....	391,932.97	375,671.45
Express .....	454,579.18	418,560.00
Other passenger train .....	100,425.31	105,252.70
Milk .....	33,229.92	36,489.20
Switching .....	321,450.71	247,434.53
All other transportation .....	250,627.66	267,898.40
Incidental and joint facility .....	989,605.80	1,148,013.94
<b>TOTAL RAILWAY OPERATING REVENUES</b>	<b>\$59,291,757.70</b>	<b>\$51,359,907.66</b>
RAILWAY OPERATING EXPENSES:		
Maintenance of way and structures ...	\$4,469,125.08	\$3,935,088.97
Maintenance of equipment .....	10,243,412.31	8,550,741.94
Traffic .....	893,067.87	905,823.86
Transportation .....	22,185,755.86	20,037,574.89
Miscellaneous operations .....	226,420.87	226,458.91
*General expenses .....	2,503,825.97	2,107,618.66
Transportation for investment—Cr. ....	3,402.87	11,162.52
<b>TOTAL RAILWAY OPERATING EXPENSES</b>	<b>\$40,518,205.09</b>	<b>\$35,752,144.71</b>
Ratio of operating expenses to operating revenues .....	68.34	69.61
Net Revenue from Railway Operations...	\$18,773,552.61	\$15,607,762.95
Railway tax accruals .....	5,316,768.82	3,586,475.46
<b>RAILWAY OPERATING INCOME</b>	<b>\$13,456,783.79</b>	<b>\$12,021,287.49</b>
OTHER OPERATING INCOME:		
Hire of freight cars—Net .....	\$479,737.18	\$333,011.34

Other equipment rents—Net .....	84,647.14	121,609.55
Joint facility rents—Net .....	76,383.09†	86,451.23
<b>TOTAL OTHER OPERATING INCOME....</b>	<b>\$488,001.23</b>	<b>\$541,072.12</b>
<b>NET RAILWAY OPERATING INCOME .....</b>	<b>\$13,944,785.02</b>	<b>\$12,562,359.61</b>
NONOPERATING INCOME:		
Miscellaneous rent income .....	\$458,774.02	\$649,872.17
Miscellaneous nonoperating physical property .....	211,499.39	233,028.82
Separately operated properties—Profit..	11,197.95	18,651.20
Dividend income .....	423,397.93	609,999.97
Income from funded securities .....	877,108.26	843,984.35
Income from unfunded securities and accounts .....	144,337.41	144,214.68
Income from sinking and other reserve funds .....	28,288.67	28,077.50
Miscellaneous income .....	12,479.91	12,297.63
<b>TOTAL NONOPERATING INCOME .....</b>	<b>\$2,167,083.54</b>	<b>\$2,540,126.32</b>
<b>GROSS INCOME .....</b>	<b>\$16,111,868.56</b>	<b>\$15,102,485.93</b>
DEDUCTIONS FROM GROSS INCOME:		
Rent for leased roads .....	\$3,255,779.56	\$3,259,767.59
Miscellaneous rents .....	137,850.09	137,643.02
Miscellaneous tax accruals .....	169,144.86	176,166.99
Interest on funded debt .....	5,408,648.80	5,446,353.68
Interest on unfunded debt .....	19,316.30	269.77
Amortization of discount on funded debt	7,370.85	7,542.53
Miscellaneous income charges .....	598,686.92	360,569.20
<b>TOTAL DEDUCTIONS FROM GROSS INCOME</b>	<b>\$9,596,797.38</b>	<b>\$9,388,312.78</b>
<b>NET INCOME .....</b>	<b>\$6,515,071.18</b>	<b>\$5,714,173.15</b>
DISPOSITION OF NET INCOME:		
Income applied to sinking and other reserve funds .....	\$44,402.00	\$44,520.00
<b>INCOME BALANCE TRANSFERRED TO PROFIT AND LOSS .....</b>	<b>\$6,470,669.18</b>	<b>\$5,669,653.15</b>

\* General Expenses in the year 1935 was reduced by a credit adjustment of \$379,058, in cancellation of amount accrued in 1934 under the Federal Railroad Retirement Act, declared unconstitutional by the United States Supreme Court on May 6, 1935.

† Debit.

### GENERAL BALANCE SHEET, DECEMBER 31, 1936

ASSETS		LIABILITIES	
INVESTMENTS:		STOCK:	
Investment in road and equipment .....	\$308,810,771.44	First preferred .....	\$27,991,200.00
Improvements on leased railway property .....	47,895,492.59	Second preferred .....	41,970,650.00
Deposits in lieu of mortgaged property sold:		Common .....	69,989,100.00
Cash .....	\$2,416.15	<b>Total Stock .....</b>	<b>\$139,950,950.00</b>
Securities .....	\$2,598,407.00	LONG-TERM DEBT:	
Less company's securities .....	1,688,600.00	Funded debt secured by mortgage .....	\$105,658,350.77
Miscellaneous physical property .....	12,363,961.88	Funded debt secured by stock collateral .....	22,658,000.00
	\$369,982,449.06	Equipment trust obligations .....	4,371,000.00
INVESTMENTS IN AFFILIATED COMPANIES:		<b>Total Long Term Debt</b>	<b>\$132,687,350.77</b>
Stocks .....	\$46,015,668.96	Grants in aid of construction .....	\$1,576,573.17
Bonds .....	12,310,702.06	CURRENT LIABILITIES:	
Notes .....	2,000,000.00	Traffic and car-service balances payable .....	\$1,996,730.60
Advances .....	6,650,856.86	Audited accounts and wages payable .....	3,207,666.42
	\$66,977,227.88	Miscellaneous accounts payable .....	924,936.33
OTHER INVESTMENTS:		Interest matured unpaid .....	1,737,223.75
Stocks .....	\$5,342,017.22	Dividends matured unpaid .....	8,128.17
Bonds .....	5,762,584.10	Unmatured dividends declared .....	1,119,597.50
Advances .....	491,249.40	Unmatured interest accrued .....	499,529.63
Miscellaneous .....	330,441.76	Unmatured rents accrued .....	328,656.76
	\$11,926,292.48	Other current liabilities .....	219,913.14
<b>Total Investments</b>	<b>\$448,885,969.42</b>	<b>Total Current Liabilities</b>	<b>\$10,042,382.30</b>
CURRENT ASSETS:		DEFERRED LIABILITIES:	
Cash .....	\$8,676,377.50	Other deferred liabilities .....	\$200,574.73
Special deposits .....	718,282.53	UNADJUSTED CREDITS:	
Loans and bills receivable .....	58,297.48	Tax liability .....	\$5,646,236.96
Traffic and car-service balances receivable .....	1,226,447.11	Insurance and casualty reserves .....	1,067,468.94
Net balance receivable from agents and conductors .....	1,156,197.80	Accrued depreciation—Road .....	11,398,362.87
Miscellaneous accounts receivable .....	1,678,319.75	Accrued depreciation—Equipment .....	65,521,026.63
Material and supplies .....	4,823,252.12	Other unadjusted credits .....	556,997.26
Interest and dividends receivable .....	339,497.80	<b>Total Unadjusted Credits</b>	<b>\$84,190,092.66</b>
Other current assets .....	351.70	CORPORATE SURPLUS:	
<b>Total Current Assets</b>	<b>\$18,677,023.79</b>	Additions to property through income and surplus .....	\$97,309,706.49
DEFERRED ASSETS:		Funded debt retired through income and surplus .....	1,738,000.00
Working fund advances .....	\$39,337.00	<b>Total Appropriated Surplus</b>	<b>\$99,047,706.49</b>
Insurance and other funds .....	\$1,050,394.63	Profit and loss credit balance .....	\$1,586,571.36
Less company's securities .....	411,000.00	<b>Total Corporate Surplus</b>	<b>\$100,634,277.85</b>
Other deferred assets .....	250,056.01	<b>Grand Total</b>	<b>\$469,282,201.48</b>
<b>Total Deferred Assets</b>	<b>\$928,787.64</b>		
UNADJUSTED DEBITS:			
Rents and insurance premiums paid in advance .....	\$25,083.53		
Discount on funded debt .....	370,889.63		
Other unadjusted debits .....	394,447.47		
	\$790,420.63		
<b>Total Unadjusted Debits</b>	<b>\$790,420.63</b>		
Securities issued or assumed—unpledged..	\$4,655,250.00		
Securities issued or assumed—pledged....	1,476,000.00		
<b>Grand Total</b>	<b>\$469,282,201.48</b>		

EDWARD W. SCHEER, President.

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